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PROCEEDINGS AND TRANSACTIONS

OF

THE SOUTH LONDON
Entomological and Natural History Society

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1956.

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TWENTY-THREE TEXT FIGURES

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CONTENTS

PAGE

Officers and Council, 1957 ... ... Inside front cover

List of Plates iii

Objects, etc., of the Society iv

Instructions to Exhibitors and Speakers v

Past Presidents vi

List of Members vii

Geographical List of Members xxvi

Council's Report for 1956 xxxv

Treasurer's Report for 1956 xxxix

Report of the Tenth International Congress of Entomology ... xliii

Obituary—Dr. E. A. Cockayne xlv

Indoor Meetings 1

Special Meeting 13

Annual Exhibition 15

Annual Meeting 52

President's Address 53

Field Meetings 69

The Wainscots. Baron de Worms 91

Advances in Insect Virus Research. Claude F. Rivers 101

The Zoogeography of the British Hemiptera-Heteroptera. T. R. E. Southwood 111

A Naturalist in the Burren. H. C. Huggins 137

De-Scaling in Gonodontis bidentata Clerck. Stuart E. W. Carlier 145

Gall Wasps (Cynipidae Hym.) of the Compositae. M. Niblett 148

Notes on the Leaf-Mining Diptera. M. Niblett 151

Erratum 154

Index 155

LIST OF PLATES

I. Dr. E. A. Cockayne .... to face page xlv

II. Annual Exhibition, 27th October 1956 .... to face page 16

III. Annual Exhibition, 27th October 1956 .... to face page 32

IV. Field Meeting Parties, Cosford Mill and Chiddingfold, Surrey .... to face page 73

V. Field Meeting Parties, Eashing Moors, Surrey and Druid's Grove, Surrey .... to face page 82

VI. Advances in Insect Virus Research .... to face page 102

VII. Advances in Insect Virus Research .... to face page 103

VIII. Advances in Insect Virus Research .... to face page 106

IX. Advances in Insect Virus Research .... to face page 107

THE SOUTH LONDON
Entomological and Natural History Society

PEPYS HOUSE, 14 ROCHESTER ROW, WESTMINSTER, LONDON, S.W.1

OBJECTS

The Society has for its objects the promotion and advancement of research in Biological Science, and its diffusion by means of meetings at the Society's Rooms for the reading of original papers, discussions and lectures, by public exhibitions, by field meetings, by the issue of publications, the formation of typical collections and of a library, and by such other means as the Council may from time to time determine.

MEETINGS

Indoor Meetings at Rochester Row are generally held twice monthly, on second and fourth Thursdays at 6.30 p.m. Field Meetings take place throughout the Summer.

SUBSCRIPTIONS

Entrance Fee, 7/6. Ordinary Members, £1 : 11 : 6; Country Members, £1 : 1 : 0 p.a.; all members under 21, 10/0 p.a. Life Membership, Twenty Guineas.

The Council invites the co-operation of all Naturalists, especially those who are willing to further the objects of the Society by reading papers and exhibiting specimens.

COLLECTIONS, etc.

The Society possesses representative collections of most orders of insects and an extensive library. These are available at all Ordinary Meetings. Members may borrow books at meetings or by post. Donations of suitable insects and books are much appreciated.

There is also a big collection of lantern slides, mainly of insects in all stages from which series may be borrowed. Microscopes are available for home use

COMMUNICATIONS

Should be addressed to the Hon. Secretary, B. GOATER, B.Sc., F.R.E.S., 71, Grant's Close, Mill Hill, N.W.7.

INSTRUCTIONS TO EXHIBITORS

(These apply to *all* meetings, not only to the Annual Exhibition.)

Attention to the following points will greatly add to the scientific value of the exhibits and our Proceedings, besides assisting the Publication Committee in preparing the reports for publication, a task which, in the past, has involved a quite unjustifiable amount of labour and time.

LABELLING OF EXHIBITS.

Adequate labelling of all exhibits is essential; such labelling to include—

(a) *name and address of exhibitor,*
(b) *order and name* (generic and specific, with author of the specific name) *of each species,*
(c) *locality* (at least County or Country), or, in the case of bred specimens, the place of origin,
(d) *date* (at least the month and year) of capture or breeding (or, in the case of a series, first and last dates),
(e) *any other information of scientific interest,* such as "Gynandromorph", etc., relating to any particular specimen.

REPORT FOR PROCEEDINGS.

A report, including all the points mentioned above for labelling, and amplified to give short details of any special aberrations, gynandromorphs (e.g. left side male, right side female), or other points of interest, *must be handed to the Recorder when the exhibit is taken in (at the Annual Exhibition) or to the Editor (at Ordinary Meetings).*

> *Such report must be written or typed (preferably typed)* ON ONE SIDE OF THE PAPER ONLY, WITH A 2 INCH MARGIN ON THE LEFT SIDE, WITH *AT LEAST* DOUBLE SPACING BETWEEN LINES, in the form used for the record in the Proceedings.

Where the author of a specific name is not known, a blank space should be left for its insertion, but every endeavour should be made to furnish this in the first instance, to avoid misunderstandings.

INSTRUCTIONS TO SPEAKERS

Speakers wishing to submit papers for publication, after reading, should give them to the Editor at the end of the meeting or send them to him as soon as possible afterwards, for consideration by the Publication Committee of the Society.

Naturally, not *all* the papers read or talks given to the Society are suitable for publication in the Transactions of the Society, and the Council, acting through the Publications Committee, reserves the right to refuse those papers it considers unsuitable.

NOV 1 9 1957

The relevant Bye-law (26) (d) states that "all papers read or announced at any meeting and accepted for publication in the Society's publications shall become the property of the Society, unless otherwise stipulated before the reading or announcement thereof".

The Society will be very pleased to receive papers for consideration that may be suitable for reading in title. These should be sent to the Editor.

PAST PRESIDENTS

1872-4	J. R. Wellman (dec.).
1875-6	A. B. Farn, F.E.S. (dec.).
1877	J. P. Barrett, F.E.S. (dec.).
1878	J. T. Williams (dec.).
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1882	T. R. Billups, F.E.S. (dec.).
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1923-4	N. D. Riley, F.Z.S., F.E.S.
1925-6	T. H. L. Grosvenor, F.E.S. (dec.).
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1929	H. W. Andrews, F.E.S. (dec.).
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1930	C. N. Hawkins, F.E.S.
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1937	F. J. Coulson.
1938	F. Stanley-Smith, F.R.E.S.
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1940	E. A. Cockayne, D.M., F.R.C.P. F.R.E.S. (dec.).
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1943	R. J. Burton, L.D.S., R.C.S.Eng
1944	Stanley N. A. Jacobs, S.B.St.J., F.R.E.S.
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1948	Col. P. A. Cardew (dec.).
1949	J. O. T. Howard, M.A.
1950	Air-Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C., F.R.E.S.
1951	T. G. Howarth, B.E.M., F.R.E.S. F.Z.S.
1952	E. W. Classey, F.R.E.S.
1953	F. Stanley-Smith, F.R.E.S.
1954	Stanley N. A. Jacobs, S.B.St.J., F.R.E.S.
1955	F. D. Buck
1956	Lt.-Col. W. B. L. Manley, F.R.E.S.

LIST OF MEMBERS

(Revised to 15th June 1957)

Chief subjects of Study:—*b*, Botany; *bi*, Biology; *c*, Coleoptera; *cr*, Crustacea; *d*, Diptera; *ec. ent*, Economic Entomology; *ent*, Entomology, General; *e*, Exotic; *g*, Genetics; *hem*, Hemiptera; *hym*, Hymenoptera; *l*, Lepidoptera; *mi* Microscopy; *ml*, Micro-lepidoptera; *mo*, Mollusca; *n*, Neuroptera; *nat. hist*, Natural History; *nat. phot*, Nature Photography; *od*, Odonata; *oo*, Oology; *orn*, Ornithology; *orth*, Orthoptera; *r*, Reptiles; *rh*, Rhopalocera; *t*, Trichoptera; *z*, Zoology.

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Including Honorary Members appointed under Bye-law 10(a), (Hon.); and Special Life Members appointed under Bye-law 10(b), (S.L.).

DATE OF APPOINTMENT.	DATE OF JOINING SOCIETY.	CLASS.	NAME, ADDRESS AND INTERESTS.
10. 1.1951.	10. 1.1951.	Hon.	Gifford, Walter S., R.F.D., No. 2, Greenwich, Connecticut, U.S.A. *l*.
1. 1.1950.	12.10.1899.	S.L.	Carr, Rev. F. M. B., M.A., L.TH., Martin's Close, Mudeford, Christchurch, Hants. *l*, *n*.
1. 1.1951.	25. 1.1900.	S.L.	Day, F. H., F.R.E.S., Blackwell Lodge West, Carlisle, Cumberland. *l*, *c*.
1. 1.1953.	1902.	S.L.	Hare, E. J., C.B.E., F.R.E.S., Harrow Place, Pinden, Dartford, Kent. *l*.

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YEAR OF ELECTION.	
1956	Akester, W. J., F.R.P.S., 4, Riverdene, Edgware, Middx. (*nat. phot.*)
1956	Alford, D. V., 7, St. Martin's Approach, Ruislip, Middx. *l*.
1951	Allan, P. B. M., M.B.E., M.A., F.S.A., F.R.E.S., F.Z.S., No. 4, Windhill, Bishop's Stortford, Herts. *l*.
1950	Allen, Miss D. M., "Cedars", Furzedown College, Wellham Road, Tooting, London, S.W.17. *nat. hist*.
1943	Allen, Donald, F.R.P.S., F.R.S.A., F.R.E.S., 698, Warwick Road, Solihull, Warwickshire. *hym*, *ent*, *l*, *nat. phot*, *mi*.
1951	Allen, Rev. P. V. M., 1, Flint Cottages, Tunstall, nr. Sittingbourne, Kent. *l*.
1956	Ansorge, Sir Eric, C.S.I., C.I.E., F.R.E.S., "Timbers", Walders Lane, Chalfont St. Peter, Bucks. *l*, *c*.
1953	Asahina, S., D.SC., Totsuka 3-chome, 123, Shinjuku-ku, Tokyo, Japan. *od*.

1956 ASHBY, Miss F. A., 108, Woodhill, Woolwich, S.E.18. *c.*

1953 ASHBY, G. J., F.R.E.S., c/o Zoological Society of London, Regent's Park, London, N.W.8. *ent.*

1950 ASHWELL, D. A., The Heights, Galloway Road, Bishop's Stortford, Herts. *g, od, hym, nat. phot.*

1946 ASTBURY, C. F., c/o 69b, St. Helens Park Road, Hastings, Sussex. *l.*

1950 ATHERLEY, Miss M., 43, Farley Road, Derby. *l.*

1934 ATKINSON, J. L., No. 2, Gatcombe House, Littlehempston, Nr. Totnes, Devon. *l.*

1952 BAILEY, KARL E. J., 73, Botley Road, Oxford. *l.*

1952 BAKER, B. R., B.SC., 71a, Berkeley Avenue, Reading. *l, t.*

1939 BAKER, Capt. D. B., R.A.O.C., F.R.E.S., c/o 7, Tabor Court, Cheam, Surrey. *l, c.*

1953 BAKER, J. A., B.A., The Old Vicarage, Churt, Surrey. *l, t.*

1947 BALFOUR-BROWNE, Prof., W. A. F., M.A., F.R.S.E., F.R.E.S., F.L.S., Brocklehirst, Collin, Dumfries. *c.*

1942 BANNER, JOHN V., M.R.C.S., L.R.C.P., F.R.E.S., "Wykehurst," 41, Varndean Gardens, Brighton 6, Sussex. *l.*

1953 BARTON, Major B. C., O.B.E., Castle Mead, Highcliffe, Christchurch, Hants. *l.*

1948 BAXTER, L. N., 16, Bective Road, Forest Gate, London, E.7. *l. breeding.*

1948 BAXTER, R. N., 16, Bective Road, Forest Gate, London, E.7. *l. breeding.*

1933 BAYNES, E. S. A., O.B.E., F.R.E.S., 2, Arkendale Road, Glenageary, Co. Dublin, Eire. *l.*

1954 BEARD, J. W., 79a, Lansdowne Place, Hove, Sussex. *ent.*

1954 BEAUFOY, S., B.SC.(ENG.), A.M.I.E.E., F.R.P.S., F.R.E.S., 98, Tuddenham Road, Ipswich, Suffolk. *ent.*

1938 BIERNE, B. P., PH.D., F.R.E.S., F.L.S., Officer-in-Charge, Entomology Laboratory, Box 179, Belleville, Ontario, Canada. *ml.*

1949 BELL, C. L., F.R.E.S., 23, Harcourt Road, Redland, Bristol 6. *l.*

1947 BEST, A. A., 131, Woodham Lane, New Haw, Weybridge, Surrey. *l.*

1956 BIRD, H. W., Redclyffe, The Avenue, Walton Park, Clevedon, Surrey. *l.*

1949 BIRKETT, NEVILLE L., M.A., M.B., B.CHIR. (CANTAB.), 3, Thorny Hills, Kendal, Westmorland. *l, c, d.*

1945 BLASDALE, PHILIP, 10, Quarry Hill Road, Ilkeston, Derby. *ent.*

1949 BLATHWAYT, C. S. H., M.A. (OXON), F.R.E.S., "Amalfi," 27, South Road, Weston-super-Mare, Somerset. *l.*

1948 BLAXILL, A. D., "St. Marthas," Braiswick, Colchester, Essex. *l.*

1926 BLISS, A., "Golden Mist," Whitford, near Axminster, Devon. *l.*

1925 BLYTH, S. F. P., 6, Hatherley Road, Winchester, Hants. *l.*

1948 Bolingbroke and St. John, The Viscountess (née Frohawk, Valezina), Essendene, Cavendish Road, Sutton, Surrey. *nat. hist, ent.*

1948 Bolton, E. L., Lyncombe, Stagbury Avenue, Chipstead, Surrey. *l.*

1948 Bowater, Lt.-Col. W., M.C., B.D.S., T.D., D.L., 41, Calthorpe Road, Edgbaston, Birmingham, 15. *l, heredity.*

1944 Bowden, S. R., B.SC., A.R.C.S., F.R.E.S., 53, Crouch Hall Lane, Redbourn, Herts. *l, g.*

1946 Boyce, B., 16, Highland Road, Chichester, Sussex. *l.*

1948 Boyes, J. D. C., B.SC., A.R.I.C., A.R.P.S., Wimborne, Millfields, Nantwich, Cheshire. *l.*

1946 Bradley, J. D., F.R.E.S., 53, Osterley Road, Isleworth, Middx. *l.*

1947 Bretherton, R. F., C.B., M.A., F.R.E.S., Ottershaw Cottage, Ottershaw, Surrey. *l.*

1933 Brett, G. A., B.SC., A.R.C.S., D.I.C., F.R.E.S., 2, Claygate Lane, Hinchley Wood, Esher, Surrey. *ent.*

1952 Brindle, Allan, F.R.E.S., 86, Princess Street, Nelson, Lancs. *ent.*

1940 Britten, H., M.M., F.R.H.S., F.INST.P.A., "Newholme," 21, Toller's Lane, Old Coulsdon, Surrey. *ent (Chalcididae).*

1930 Brooke, Miss W. M. A., F.L.S., Greenglade, Malvern Road, Liss, Hants. *ec, ent, b, marine life.*

1954 Brown, F. C., F.Z.S., 6, Osmond Gardens, Wallington, Surrey. *Giant Silk Moths.*

1943 Brown, S. C. S., L.D.S., R.C.S.ENG., H.D.D.EDIN., 142, Richmond Park Road, Bournemouth, Hants. *ml, hym.*

1952 Brush, H. J., "Larkspur", West Farm Close, Ashtead, Surrey. *ent.*

1952 Bryce, D., The Bungalow, Cliffe, Gt. Harwood, Blackburn, Lancs. *l, dip.*

1936 Buck, F. D., A.M.I.PTG.M., *Hon. Editor*, 36, Besant Court, Newington Green Road, London, N.1. *c.*

1955 Buckler, H. A., Sutton Bassett, Market Harborough, Leics. *l, ml*

1927 Bull, G. V., B.A., M.B., " White Gables" Sandhurst, Kent. *l.*

1946 Burkhardt, Col. V. R., late R.A., D.S.O., O.B.E., 86, Main Street, Stanley, Hong Kong. *l.*

1944 Burns, B. S., 1, Jamaica Villas, Stoke Road, Gosport, Hants. *l*

1948 Burton, P. J., L.D.S., R.C.S.ENG., F.R.E.S., "Paysanne," Godshillwood, near Fordingbridge, Hants. *l.*

1938 Burton, R. J., L.D.S., R.C.S.ENG., Cosey Dene, Blackminster, Evesham, Worcs. *l.*

1947 Busbridge, W. E., Firwood, 4, Mount Harry Road, Sevenoaks, Kent. *l.*

1953 Butterfield, A. W., 124, Ashville Road, Leytonstone, London, E.11. *l.*

1951 Byers, F. W., 59, Gurney Court Road, St. Albans, Herts. *l.*

1953 Cadbury, Mrs. Betty, 78, Oakley St., Chelsea, London, S.W.3. *l.*

1948 Calderara, P., A.M.I.E.E., "Stratton Lodge", 26, Manor Road, Barnet, Herts. *l*, *c*.

1945 Carlier, Stuart E. W., F.R.E.S., 6, Warwick Buildings, Warwick Road, Solihull, Warwickshire. *l*, *c*.

1950 Carolsfeld-Krause, A. G., Slotsherrens Have 97, (Kobenhavn)-Vanlose, Copenhagen, Denmark. *l*.

1956 Carter, C. I., 42, The Wells House, Well Walk, Hampstead, N.W.3. *ent. arachnology.*

1946 Carter, R. A., M.A., M.B., M.R.C.P., F.Z.S., 72, Panton St., Cambridge. *c*.

1946 Chalmers-Hunt, J. M., F.R.E.S., 70, Chestnut Avenue, West Wickham, Kent. *l*.

1945 Charlson, S., 89, Market Street, Stalybridge, Cheshire. *l*, *ent*, *g*.

1956 Chatelain, R. G., 65, East Drive, St. Mary Cray, Kent. *l*.

1952 Chevallier, L. H. S., 95, Muswell Hill Road, London, N.10. *l*.

1952 Christie, J., 137, Gleneldon Road, Streatham, S.W.16. *d*.

1945 Christie, L., *Lanternist*, 137, Gleneldon Road, Streatham, S.W.16. *ent*.

1954 Clark, J., 7, Park Road, Bognor Regis, Sussex. *ent*.

1951 Clarke, C. Astley, M.D., F.R.C.P. (Lond.), High Close, Thorsway, Caldy, Cheshire. *l*.

1936 Classey, E. W., F.R.E.S., 22, Harlington Road East, Feltham, Middlesex. *l*.

1934 Cole, G. A., M.A., F.C.A., Highfield, Westhumble, Dorking, Surrey.

1953 Coleridge, W. L., The Gnoll, Bishops Teignton, nr. Teignmouth, S. Devon. *ent*, *orn*.

1946 Collier, Major A. E., M.C., B.A., F.R.E.S., Lynher, Horsham Rd., Cranleigh, Surrey. *l*.

1936 Cooper, B. A., B.SC., A.R.C.S., F.R.E.S., Entomology Dept., Shardlow Hall, Shardlow, Derby. *c* (*Elateroidea*), *ecology*, *ec. ent*, *l*, *nat. phot.* (*Life Member*).

1923 Cook, C. H., 11, Redesdale Street, Chelsea, London, S.W.3. *l*.

1947 Cornelius, J. A., 12 Sydenham Hill, Sydenham, London, S.E.26. *l*.

1922 Couchman, L. E., F.R.E.S., 35, Browne Street, West Hobart, Tasmania. *l*.

1909 Coulson, F. J., "Burnigill", 24, Springfield Avenue, Merton Park, London, S.W.20. *c*, *hem*, *l*.

1918 Court, T. H., F.R.G.S., " Oakleigh," Market Rasen, Lincoln.

1947 Cox, W. A. A., 65, Bamford Road, Bromley, Kent. *ent*.

1950 Coxey, S., "Balcombe", 109, Regent Road, Bolton, Lancs. *l*.

1953 Coxon, G. F., Crosby, Drive Spur, Kingswood, Surrey. *ent. nat. hist.*

1934 Craske, J. C. B., F.R.E.S., 33, Hinchley Drive, Hinchley Wood, Esher, Surrey. *l*.

1937 Craske, R. M., 22, Edge Street, Campden Hill, London, W.8. *ent*.

1918 Craufurd, Clifford, "Denny," Bishop's Stortford, Herts. *l*.

1933 Crewdson, R. C. R., F.R.E.S., "The Grange," Delamere, Northwich, Cheshire. *l.*

1947 Cripps, C. H., M.A., Bulls Head Farm, Eakley Lanes, Stoke Goldington, Newport Pagnell, Bucks. *l, rh.* (*Life Member.*)

1949 Cross, G. S. E., A.C.T.S.INC., 31, Avenue Road, Finchley, London, N.12. *l.*

1932 Crow, P. N., F.R.E.S., Ravensdale, Ockham Drive, Ockham Road, East Horsley, Surrey. *l.*

1950 Cruttwell, G. H. W., Old Ford House, Frome, Somerset. *ent.*

1954 Cue, P., "Lhasa," Malvern Road, Ashford, Kent. *ent.*

1947 Cunningham, D., M.A., 42, Rae Street, Dumfries. *l, flora.*

1950 Curl, B. J. A., 33, Fair Oak Road, Bishopstoke, Eastleigh, Hants. *l.*

1946 Currie, P. W. E., M.C., F.R.E.S., The Platte, Ackleton, Wolverhampton. *hym, orth.*

1937 Curtis, A. E., F.R.E.S., "The Cottage," Ifold Estate, Loxwood, Billingshurst, Sussex. *l.*

1946 Curtis, W. Parkinson, F.R.E.S., M.S.B.E., Ladywell Cottage, Tower Road, Branksome Park, Bournemouth, Hants. *l.*

1956 Dacie, J. V., M.D., 10, Alan Road, Wimbledon, S.W.19. *l.*

1951 Daly, D. W., P.O. Box 1670, Salisbury, Southern Rhodesia. *ent.*

1927 Danby, G. C., "Sheringham", 53, Albion Road, Sutton, Surrey. *l.*

1956 Davidson, W. F., F.G.S., 9, Castlegate, Penrith, Cumberland. *l, c.*

1951 Davis, G. A. N., M.R.C.S., L.R.C.P., Holt Wood, Aylesford, Kent. *l.*

1933 Demuth, R. P., M.A., L.R.I.B.A., Hardwicke, Glos. *l.*

1930 Denvil, H. G., F.Z.S., F.R.H.S., 4, Warwick Road, Coulsdon, Surrey. *l, c.*

1947 Dewick, A. J., Curry Farm, Bradwell-on-Sea, Southminster, Essex. *l.*

1945 Dixon, C. H., Northbrook Farm, Micheldever, Hants. *ent.*

1921 Dolton, H. L., 36, Chester Street, Oxford Road, Reading, Berks. *l.*

1930 Dudbridge, B. J., B.A., c/o The Secretariat, Dar-es-Salaam, Tanganyika. *ent.*

1949 Duffield, C. A. W., M.C., J.P., F.R.E.S., Pickersdane, Brook, near Ashford, Kent. *l, c, hem, homoptera.*

1946 Dunbar, J. G., Royal Commission, Ancient and Historic Monuments (Scotland), 3, South Bridge, Edinburgh 1. *l.*

1950 Dunk, H. C., 24, Abbots View, Abbots Rise, Kings Langley, Herts. *l.*

1956 Dunn, T. C., B.SC., D.T., P.T., The Poplars, Chester-le-Street, Co. Durham. *l, esp. ml.*

1952 Dyson, R. C., N.D.H., F.R.E.S., 112, Hollingbury Park Avenue, Brighton 6, Sussex. *l.*

1927 Eagles, T. R., *Hon. Librarian*, 32, Abbey Road, Enfield, Middlesex. *l, c.*

1937 Easton, N. T., D.F.H., Westbury, West End Road, Mortimer, Berks. *l, g, nat. phot.*

1949 Edwards, F. H., Rockfield, Abbey Road, Worthing, Sussex. *l*

1945 Edwards, G. Graveley, Talbot Croft, St Albans, Herts. *l.*

1945 Edwards, R. C., Arlesley, Pilgrims' Way, Westerham, Kent. *ent.*

1941 Edwards, Rev. Canon T. G., M.A., F.Z.S., 93, Alleyn Park, Dulwich, London, S.E.21.

1933 Elgood, W. S., M.A., North Brink, Wisbech, Cambs. *l.*

1951 Ellison, Eldon F. D., Youl Grange, Link Road, Eastbourne, and Clifton College, Bristol. *l.*

1945 Ellison, R. Eldon, F.R.E.S., Youl Grange, Link Road, Eastbourne. *l.*

1937 Embry, B., F.R.E.S., Brocks Ghyll, Newick, Sussex. *l.*

1932 Ennis, L. H., F.C.A., Southery, Milbourne Lane, Esher, Surrey. *l.*

1947 Evans, Miss E., c/o Royal Entomological Society of London, 41, Queen's Gate, London, S.W.7.

1945 Evans, L. J., 73, Warren Hill Road, Birmingham 23. *l.*

1946 Fairclough, R., "Blencathra," Deanoak Lane, Leigh, Surrey *ent.*

1947 Farwell, I. G., F.R.E.S., "Mayfield Villa", Portmore, Lymington, Hants. *l.*

1955 Fearnehough, T. D., A.MET., 13, Salisbury Road, Dronfield, Nr Sheffield. *l.*

1947 Feilden, G. St. Clair, B.M./N.L.B.G., London, W.C.1. *ent.*

1946 Ferguson, L. F., L.D.S., R.C.S., "Harley House," Gloucester Road, Teddington, Middlesex. *c.*

1939 Ferrier, W. J., F.R.E.S., 86, Portnalls Road, Coulsdon, Surrey. *l.*

1949 Ffennell, D. W. H., Martyr Worthy Place, Winchester, Hants. *l*

1955 Firmin, Joseph, 23, Creffield Road, Colchester, Essex. *l.*

1943 Ford, E. B., M.A., D.SC., F.R.S., F.R.E.S., The University Museum, Oxford. *ent, g.*

1920 Ford, L. T., B.A., 28, Park Hill Road, Bexley, Kent. *l*

1939 Forster, H. W., 32, Park Mead, Harlow, Essex.

1915 Foster, T. B., "Downlands", 24, York Road, Selsdon, Surrey. *l.*

1948 Fraser, Lt.-Col. F. C., I.M.S.RETD., M.D., M.R.C.S., L.R.C.P., F.R.E.S., 55, Glenferness Avenue, Winton, Bournemouth, Hants. *od, n.*

1952 Fraser, R. A., c/o P. A. Fraser, Blairbeth, Amatikulu, Zululand, S. Africa. *l, c.*

1948 Frazer, J. F. D., B.M., B.CH., Stone House, Harbourland, Boxley, Maidstone, Kent. *rh, r.*

1946 Friedlein, A. F. E., "St. Andrews", 85, Priests Lane, Shenfield, Brentwood, Essex. *l.*

1951 Frohawk, Mrs. M. J., Essendene, Cavendish Road, Sutton, Surrey. *ent, nat. hist.*

1947 GARDNER, A. E., F.R.E.S., *Hon. Curator*, 29, Glenfield Road, Banstead, Surrey. *od, l.*

1952 GARLAND, W. A., 1, Testard Road, Guildford, Surrey. *rh.*

1955 GATES, M. D. C., 5, Garden Close, Banstead, Surrey. *l.*

1951 GERARD, B. McC., 68, Fern Lane, Heston, Hounslow, Middx. *ent.*

1950 GENT, P. J., 3, Union Road, Wellingborough, Northants. *l.*

1952 GILLMAN, Lt.-Col. H. C. R., M.B.E., R.A., Noads House, Tilshead, Wilts. *ent.*

1950 GOATER, B., B.SC., F.R.E.S. (*Hon. Secretary*), 71, Grant's Close, Mill Hill East, N.W.7. *l.*

1936 GOODBAN, B. S., 99, Lime Grove, Eastcote, Ruislip, Middx. *l.*

1935 GOODLIFFE, F. D., M.A., Lord Wandsworth Agricultural College, Long Sutton, Basingstoke, Hants. *ec. ent.*

1912 GOODSON, A. L., 26, Park Road, Tring, Herts. *l.*

1955 GOOSEMAN, M. P., F.R.E.S., "Lonicera", Bottesford Road, Bottesford, Scunthorpe, Lincs. *l, c.*

1926 GORDON, D. J., C.B., B.A., F.R.E.S., Table Office, House of Commons, London, S.W.1. *c, l.*

1949 GOULD, A. W., *Council*, 109a, Shooters Hill Road, Blackheath, S.E.3. *c.*

1936 GOWING-SCOPES, E., F.R.E.S., "Oakhurst", Oakwood Road, Crofton, Orpington, Kent. *c.*

1924 GRANT, F. T., 45, Hastings Road, Maidstone, Kent. *l, c.*

1950 GREENWOOD, K. C., M.B., CH.B., "Rydal," 1, Conyers Avenue, Birkdale, Southport, Lancs. *l, ml.*

1953 GRIFFITHS, G. C. D., F.R.E.S., 13, Woodlands Avenue, Finchley, London, N.3. *d* (*Agromyzidae*)

1957 GROVES, E. W., 143, Carshalton Park Road, Carshalton, Surrey. *hem, d, hym. ec.*

1950 GULLY, J. G., Howells Bank Farm, Ringmer, Sussex. *l.*

1955 GURDON, J. B., Furnell House, Frensham, Surrey. *l.*

1947 HAGGETT, G. M., F.R.E.S., 1, Torton Hill, Arundel, Sussex. *l, ent.*

1953 HALL, D. G., 34, Ellerton Road, Wandsworth Common, London, S.W.18. *c.*

1949 HALL, STEWART SCOTT, C.B., M.SC., F.R.AE.S., 106, Hamilton Terrace, London, N.W.8

1955 HALSTEAD, D. G. H., 1, Barry Avenue, Windsor, Berks. *c.*

1944 HAMMOND, H. E., F.R.E.S., 16, Elton Grove, Birmingham 27. *l, ent.*

1949 HANSON, S. M., F.R.E.S., 167, Gunnersbury Park, Ealing, London, W.5. *l.* (*Life Member.*)

1948 HARBOTTLE, The Rev. A. H. H., M.A., 6, Ranelagh Grove, St. Peters, Broadstairs, Kent. *l.*

1943 HARDS, C. H., F.R.E.S., 40, Riverdale Road, Plumstead, London, S.E.18. *l.*

1956 HARDY, D. E., District Bank House, Heswall, Wirral, Cheshire. *l.*

1943 Harper, Comdr. G. W., R.N., F.R.E.S., Neadaich, Newtonmore, Inverness-shire, Scotland. *l.*

1951 Harper, M. W., Neadaich, Newtonmore, Inverness-shire, Scotland. *l, ent.*

1936 Harris, W. H. A., " Kemel," Oak Tree Close, Stanmore, Middlesex. *l.*

1951 Harrison-Gray, M., 16, Carlton House Terrace, London, S.W.1. *Saturniidae.*

1953 Harvey, Cpl. J. G. (Staff), R.A.F. Hospital, Ely, Cambs. *c.*

1927 Hawgood, D. A., 2, Kingsmead Road, Tulse Hill, London, S.W.2. *l.*

1924 Hawkins, C. N., F.R.E.S., 23, Wilton Crescent, Wimbledon, London, S.W.19. *l, c, g.*

1938 Haynes, R. F., *Council, Recorder*, 29, Fairfield Drive, Dorking, Surrey. *l.*

1923 Hayward, Capt. K. J., F.R.E.S., F.Z.S., F.R.G.S., Instituto Miguel Lillo, Calle Miguel Lillo, 205, Tucuman, Republica Argentina. *l, orn, c.*

1954 Heath, John, F.R.E.S., c/o The Nature Conservancy, Merlewood Research Station, Grange-over-Sands, Lancs. *ml.*

1920 Hemming, A. Francis, C.M.G., C.B.E., F.Z.S., F.R.E S., 28, Park Village East, Regents Park, London, N.W.1. *l.*

1924 Henderson, J. L., *Hon. Treasurer*, 6, Haydn Avenue, Purley, Surrey. *c.*

1951 Herbulot, C., 31, Av. d'Eylau, Paris 16e, France. *l.*

1954 Hervey, The Rev. Canon G. A. K., M.A.(OXON.), Great Salkeld Rectory, Penrith, Cumberland. *ent, orn, b.*

1945 Heslop, Mrs E. A., " Belfield," Poplar Road, Burnham-on-Sea, Somerset. *l. nat. hist.*

1931 Heslop, I. R. P., M.A., F.R.E.S., " Belfield," Poplar Road, Burnham-on-Sea, Somerset. *l, nat. hist.*

1946 Hewson, F., F.R.E.S., 23, Thornhill Drive, Gaisby, Shipley, Yorks. *l, hym. parasitica.*

1948 Hickin, N. E., PH.D., B.SC., F.R.E.S., *Vice-President*, Home Farm, Fetcham, Surrey. *t.*

1956 Higgins, W. J., Standard Nursery, Old Worthing Road, East Preston, Sussex. *l.*

1948 Hillaby, J. D., F.Z.S., F.R.E.S., 85, Cholmley Gardens, London, N.W.6. *ent.*

1945 Hinton, H. E., PH.D., B.SC., F.R.E.S., Department of Zoology, Bristol University, Bristol, Glos.

1949 Hoare-Ward, J. W., Box's Farm, Horsted Keynes, Sussex. *l.*

1953 Hodgkinson, Alexander, A.R.C.A., 12, Kitson Road, Barnes, London, S.W.13. *l.*

1956 Homer, T. J. G., M.A., A.M.INST.T., Yelton Hotel, Hastings, Sussex. *l.*

1950 Honeybourne, T. J., F.R.E.S., "Laceys," 97, Birchwood Road, Wilmington, Dartford, Kent. *l.*
1955 Hornabrook, R. W., CH.B., M.R.A.C.P., Nuffield Foundation House, 34, Leinster Gardens, London, W.2. *c.*
1945 Howard, A. P., 65 Hale Lane, London, N.W.7. *ent.*
1927 Howard, J. O. T., M.A., Wycherley, Deepdene Wood, Dorking, Surrey. *l.*
1953 Howarth, Mrs. Helen, "Arrochar", Barnet Gate, Arkley, Herts. *l, b.*
1931 Howarth, T. G., B.E.M., F.R.E.S., F.Z.S., "Arrochar", Barnet Gate, Arkley, Herts. *l.*
1934 Huggins, H. C., F.R.E.S., 65, Eastwood Boulevarde, Westcliff-on-Sea, Essex. *l, ent.*
1947 Humphrey, S. W., Pear Tree House, Roade, Northamptonshire. *l, rh.* (*Life Member.*)
1933 Hutchings, H. R., 127, Chadacre Road, Stoneleigh, Surrey. *l.*
1950 Hyde, G. E., F.R.E.S., 20, Woodhouse Road, Doncaster, Yorks. *l, od.*
1953 Hyde, R. A., "Woodside," Reading Road, Finchampstead, Berks. *c.*
1950 Hyde-Wyatt, B., 108, Lindsay Road, Worcester Park, Surrey. *od, c, l.*

1955 Iles, Peter, 62, Ingle Avenue, Morley, Leeds, Yorks. *l.*
1956 Imber, S. F., 241, Mayall Road, Herne Hill, London, S.E.24. *rh.*
1953 Ives, Major D. H., R.A., 2nd Bn., The Gold Coast Regt., R.W.A.F.F., Accra, Ghana, W. Africa. *l.*

1956 Jackson, Miss D. J., North Cliff, St. Andrews, Fife. *c, hym. par.*
1940 Jackson, Capt. Reginald A., C.B.E., R.N., F.R.E.S., Middle Farm House, Codford St. Mary, Warminster, Wilts. *ent, l.*
1923 Jacobs, S. N. A., S.B.ST.J., F.R.E.S., *Trustee* and *Council*, "Ditchling," 54, Hayes Lane, Bromley, Kent. *ml, e.ml.*
1955 Jacoby, M. C., 22, Birdhurst Road, South Croydon, Surrey. *ent.*
1956 James, B. C., 31, Mainwaring Road, Lincoln. *l.*
1948 Janson, D. B., 44, Great Russell Street, London, W.C.1. *ent.* (*Life Member*).
1925 Jarvis, C. MacKechnie, F.L.S., Sussex House, Parkside, Wimbledon. *c.*
1938 Jarvis, F. V. L., B.SC., F.R.E.S., "Corbière", 33, Greencourt Drive, Bognor Regis, Sussex. *l, g.*
1947 Jay, E. P., Surrey Cottage, Littlehampton, Sussex. *l.*
1951 Jefferson, T. W., 37, Riversdale Terrace, Sunderland, Co. Durham. *l.*
1948 Jeffs, G. A. T., Nunsholme, Nuns Corner, Grimsby, Lincs. *l, ent.*
1945 Johnson, Major-General Sir. G. F., K.C.V.O., C.B., C.B.E., D.S.O., Castlesteads, Brampton, Cumberland. *l, orn.*
1952 Jopson, F. L., Langdale, Higherford, Nelson, Lancs. *l.*

1956 Keith-Johnston, Colin, 350, Finchley Road, London, N.W.3. *l.*

1946 Kemp, J. K. C., 12, Nab Wood Crescent, Shipley, Nr. Bradford, Yorks. *l.*

1956 Kennard, H. A., Torns, Ashburton, Devon. *l, ml.*

1913 Kershaw, Col. S. H., D.S.O., Alderman's Place, Aspley Heath, Bletchley, Bucks. *l.*

1928 Kettlewell, H. B. D., M.A., M.B., B.CHIR., M.R.C.S., L.R.C.P., F.R.E.S., Dept. of Zoology, University Museum, Oxford. *g, l.*

1952 Kindred, A. D., 27, Richmond Avenue, Bedfont, Middlesex. *l.*

1947 Klimesch, J., Donatusgasse 4, Linz-a-Donau, Austria. *ml.*

1944 Kloet, G. S., F.Z.S., F.R.E.S., 14, Hawthorne Lane, Wilmslow, Cheshire. *ent.*

1955 Klots, Prof. Alexander B., B.S., M.S., PH.D., 215, Young Avenue, Pelham, New York, U.S.A. *l, Systematics, Ecology*

1952 Knight, F., 90, Mitford Road, Holloway, London, N.19. *l.*

1951 Lane, A. W., 178, Ravenscroft Road, Beckenham, Kent. *c.*

1947 Lanfear, A. H., "Highclere," 20, South Eastern Road, Ramsgate. Kent. *l.*

1945 Lang, R. M., A.C.A., 85, Cheam Road, E. Ewell, Surrey. *l.*

1951 Langmaid, J. R., 9, Craneswater Park, Southsea, Portsmouth, Hants. *l.*

1956 Langton, P. H., 17, Warnham Road, Horsham, Sussex. *c, l.*

1941 Last, H. R., F.R.E.S., 12, Winkworth Road, Banstead, Surrey. *c, l.*

1946 Latham, F. H., F.R.E.S., "The Elms," Mapleborough Green, Redditch, Worcs. *l.*

1927 Lawson, H. B., "Churchmead," Pirbright, Surrey. *l.*

1952 Leech, M. J., "The Spinney," Freshfield Road, Formby, Nr. Liverpool. *l, c.*

1914 Leeds, H. A., 3, Beville, Wood Walton, Huntingdon. *l.*

1952 Lees, F. H., F.R.E.S., "The Gables," Maidencombe, Torquay. *l.*

1948 Leston, D., F.Z.S., F.R.E.S., 44, Abbey Road, London, N.W.8. *hem.* (*Life Member.*)

1947 Lewis, E., F.R.E.S., 8, Parry Road, South Norwood, London, S.E.25. *c.*

1934 Line, H. V., 11, Priory Avenue, Petts Wood, Orpington, Kent.

1951 Ling, R. B., The Severells, Rectory Lane, Sidcup, Kent. *l.*

1933 Lipscomb, Brigadier C. G., H.Q., Hanover Dist., Hanover, B.A.O.R. 8. *l.*

1937 Lisney, A. A., M.A., M.B., F.R.E.S., "Dune Gate," Clarence Road, Dorchester, Dorset. *l.*

1918 Llewelyn, Mrs. J. R., B.SC. (HORT.), F.R.E.S., 38, Fernleigh Rise, Ditton, Maidstone, Kent. *ent.*

1948 Lockington, N. A., M.A., A.R.I.C., 19, Spring Grove, Loughton, Essex. *ent.*

1948 Lorimer, R. I., 8, Southway, Totteridge, N.20. *l.*

1950 Lovell, R., 27, Athenaeum Road, Whetstone, London, N.20. *l.*

1954 Lyon, F. H., M.B.E., F.R.E.S., Green Headland, Sampford Peverell, Tiverton, Devon. *l.*

1953 McClure, A. M., Bowyers Court, Wisborough Green, Sussex. *l.*
1952 McCrae, A. W. R., Oak Lawn, Gordon Avenue, Stanmore, Middlesex. *l.*
1950 McDermott, Miss C. A., " The Dene," Borough Green, Kent. *rh.*
1952 Mackworth-Praed, C. W., F.R.E.S., Castletop, Burley, Hants. *ent.*
1949 Macnicol, D. A. B., M.B., CH.B., 52, St Albans Road, Edinburgh 9. *l. ml.*
1931 MacNulty, B. J., PH.D., B.SC., F.R.I.C., Ministry of Supply Tropical Testing Establishment, Port Harcourt, Nigeria. *l.*
1956 Maitland-Smith, Lt. Gerald, 2/10 P.M.O., Gurkha Rifles, Falis, Claremont Road, Claygate, Surrey. *l.*
1949 Manley, G. E. L., Chalvington House, Nr. Hailsham, Sussex. *l.*
1945 Manley, Lt.-Col. W. B. L., F.R.E.S., *Vice-President*, Greenways, Shoreham Rd., Otford, Kent. *ent.*
1956 Manley, Mrs. W. B. L., Greenways, Shoreham Road, Otford, Kent. *l.*
1956 Mansell, G. H., 20, Norfolk Mansions, London, S.W.11. *l.*
1932 Marcon, Rev. J. N., Christ Church Vicarage, Seaside, Eastbourne, Sussex. *l.*
1930 Marsh, Capt. Dudley G., "White Gates", Wingham Rd., Littlebourne, Nr. Canterbury, Kent. *l.*
1956 Marsh, Capt. J. C. S., c/o Lloyds Bank Ltd., Cox's & King's Branch, 6, Pall Mall, S.W.1. *l.*
1950 Martin, E. L., 9, Devonshire Road, Harrow, Middlesex. *l, t.*
1922 Massee, A. M., O.B.E., D.SC., F.R.E.S., East Malling Research Station, Kent. *hem, c, acarina.*
1955 Matthews, D. P. L., T.D., Flat 5, 51, Cadogan Place, London, S.W.1. *l.*
1947 Maxwell, Sir Reginald M., M.A., G.C.I.E., K.C.S.I., Barford House, St Mary Bourne, Andover, Hants. *ent.*
1951 May, J. T., Homeland, Beech, Alton, Hants. *l.*
1946 Mellows, Charles, Alliott House, The College, Bishop's Stortford, Herts. *l, hym.*
1952 Menzies, I. S., "Eden Roc", Florida Road, Ferring-by-Sea, Sussex. *c, l, orth.*
1946 Mere, R. M., F.R.E.S., Mill House, Chiddingfold, Surrey. *l.*
1951 Messenger, J. L., B.A., "Oakhill", Oatlands Drive, Weybridge, Surrey. *l.*
1951 Michaelis, H. N., 10, Didsbury Park, Didsbury, Manchester 20. *l.*
1945 Michaud, J., PH.D., 22, Routh Road, London, S.W.18. *ent.*
1938 Minnion, W. E., 40, Cannonbury Avenue, Pinner, Middlesex. *l.*
1952 Montgomery, Major J. R. P., M.C., 17 Parachute Bn. (9D.L.I.) T.A., Burt Terrace Drill Hall, Gateshead, Co. Durham. *l.*
1946 Moore, B. P., B.SC., PH.D., F.R.E.S., *President*, "Montrose", Stoneyfields, Farnham, Surrey. *od, c.*

1947 MOORE, D. R., Sunnydell Cottage, Westcar Lane, Hersham, Surrey. *l.* (*Life Member*).

1947 MOFFETT, A. A., B.A., 39, Fairdale Gardens, Hayes, Middlesex. *ent.*

1951 MORE, D., The Little House, Hockley Road, Rayleigh, Essex. *ent.*

1949 MORGAN, H. D., F.R.E.S., 3, Ten Acre Wood, Margam, Port Talbot, Glam. *ent.*

1920 MORISON, G. D., B.SC., PH.D., F.R.E.S., Dept. Advisory Entomology, N. of Scotland Agricultural College, Marischal College, Aberdeen, Scotland. *ec. ent.*

1930 MORLEY, A. M., O.B.E., M.A., F.R.E.S., 9, Radnor Park West Folkestone, Kent. *l.*

1953 MORRIS, M. G., F.R.E.S., " Old Timbers," 57, St. Mary's Avenue, Shortlands, Kent. *l.*

1945 MURRAY, Rev. D. P., F.R.E.S., The Lodge, Stoke Golding, Nr. Nuneaton, Warwick. *l.*

1957 MURRAY, E. G., 22, Evelyn St., Deptford, Kent. *l.*

1949 NEWMAN, D. E., 4, Andrew Road, Wallingford, Berks. *l.*

1926-36 and 1945 NEWMAN, L. HUGH, F.R.E.S., Chestnut House, Cold Blow, Bexley, Kent. *l.*

1950 NEWTON, J., B.SC., 11, Oxlease Close, Tetbury, Glos. *l.*

1945 NEWTON, J. L., M.R.C.S., L.R.C.P., F.R.E.S., H.M. Prison, Brixton, S.W.2. *l, b.*

1930 NIBLETT, M., F.R.E.S., 10, Greenway, Wallington, Surrey. *galls*

1953 NISSEN, C. L., F.R.E.S., Flat 10, 250, South Norwood Hill, London, S.E.25. *l.*

1955 NOBLE, F. A., 2, Newton Road, Sparkhill, Birmingham, 11. *l.*

1938 ODD, D. A., F.Z.S., F.R.E.S., Greenbank, Shepherds Hill, Buxted, Nr. Uckfield, Sussex. *l.*

1932 O'FARRELL, A. F., B.SC., A.R.C.S., F.R.E.S., New England University, Armidale, N.S.W., Australia. *od, cr, ent.*

1934 OLIVER, G. B., "Corydon", Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*

1943 OLIVER, G. H. B., " Corydon," Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*

1952 OLSEN, E. T., Hersegade 5, Roskilde, Denmark. *ml.*

1945 OWEN, GODFREY V., Orford, 63, Manor Park Road, West Wickham, Kent. *l.*

1942 PARFITT, R. W., "Penpethy", Manor Rd., Farnborough, Hants. *l.*

1946 PARMENTER, L., F.R.E.S., 94, Fairlands Avenue, Thornton Heath, Surrey. *d.* (*Life Member.*)

1949 PARSONS, R. E. R., F.R.E.S., I.P., Woodlands Lodge, Woodlands Close, Ottershaw, Surrey. *l.*

1950 PAYNE, J. H., 10, Ranelagh Road, Wellingborough, Northants. *rh, breeding.*

1940 Payne, R. M., *Council*, 8, Hill Top, Loughton, Essex. *c*, *od*, *orth*, *b*. (*Life Member.*)

1953 Peacey, A. F., Hillside, Brimscombe, Stroud, Glos. *ml*.

1955 Pearson, A. J. R., Dower Cottage, Feering, Colchester, Essex. *rh*.

1940 Pelham-Clinton, Edward C., F.R.E.S., 34, Craigmillar Park, Edinburgh, 9. *l*.

1928 Perkins, J. F., B.SC., F.R.E.S., 95, Hare Lane, Claygate, Surrey. *hym*.

1944 Perry, K. M. P., 15, Roundwood Way, Banstead, Surrey. *c*.

1950 Peters, Wallace, M.B., B.S., M.R.C.S., L.R.C.P., F.R.E.S., 175, Lauderdale Mansions, London, W.9. *ent*, *l*.

1946 Phelps, C. C., M.B.E., 4, Queensberry House, Friars Lane, Richmond, Surrey. *l*.

1945 Philpott, V. W., F.R.E.S., Rose Cottage, Watergate Lane, Broadmayne, Dorset. *l*.

1933 Pinniger, E. B., F.R.E.S., "Littlecote", 19, Endlebury Road, Chingford, London, E.4. *od*, *n*, *l*.

1949 Platts, J. H., Green Shutters, Manthorpe Road, Grantham, Lincs. *l*.

1947 Polacek, V. B., Brandys-nad-Labem, c.p. 601, 1 patro, Komenskeho-ulice, Czeckoslovakia. *b*, *ent*, *orn*.

1933-40, 1950 Pooles, S. W. P., 154, Thorpe Road, Peterborough, Northants. *l*.

1949 Popham, W. J., 89, Frederick Place, Plumstead, London, S.E.18. *l*.

1955 Potter, N. B., The Mill House, North Warnborough, Hants. *l*.

1953 Pounce, A. G., Laurel Villa, Meopham, Kent. *ent*.

1950 Price, G. C., "Alpha," 67, Cornyx Lane, Solihull, Warwickshire. *l*.

1948 Prichard, R., "Lincona," Woodcroft Lane, Bebington, Cheshire. *l*, *ml*.

1948 Prideaux, A. G., B.A., Union Club, Carlton House Terrace, London, S.W.1. *ent* (*rh*), *orn*.

1945 Purefoy, J. Bagwell, c/o Upper Tilt Works, Cobham, Surrey. *l*.

1922 Rait-Smith, W., F.Z.S., F.R.E.S., F.R.H.S., *Trustee*, "Hurstleigh", Park Road, Redhill, Surrey. *l*.

1946 Ransome, Major-General A. L., C.B., D.S.O., M.C., The Close, Braishfield, Romsey, Hants. *rh*.

1955 Raven, C. E., D.D., D.SC., F.B.A., F.L.S., 10, Madingley Road, Cambridge. *l*.

1953 Rawlings, Rev. Canon C. J., "Muristan", Berther Rd., Emerson Park, Hornchurch, Essex. *l*.

1946 Ray, H., Mill House Cottage, Bishopstoke, Hants. *rh*.

1955 Redgrave, A. C. R., 47, Swanmore Road, Boscombe, Bournemouth. *l*.

1952 Reid, J. F., 19, High Street, Leighton Buzzard, Beds. *l*.

1950 Reid, W., A.M.I.C.E., 6, Whirlow Park Road, Sheffield 11, Yorks. *ent.*

1953 Renfrew, C., F.R.I.C.S., F.A.I., Lanhill, Bourton-on-the-Water. Glos. *l.*

1952 Richards, A. W., M.A., B.SC., "Oriel", Court Moor Avenue, Fleet, Hants. *od, orth, l, ml, Pyralidae.*

1945 Richards, Prof. O. W., M.A., D.SC., F.R.E.S., Department of Zoology, Imperial College of Science and Technology, South Kensington, London, S.W.7. *ent.*

1948 Richardson, A. E., 391, Malden Road, Worcester Park, Surrey. *l.*

1942 Richardson, Austin, M.A., F.R.E.S., Beaudesert Park, Minchinhampton, Glos. *l.*

1936 Richardson, N. A., 11, Windsor Street, Bletchley, Bucks. *l.*

1908 Riley, Capt. N. D., C.B.E., F.R.E.S., F.Z.S., 7, McKay Road, Wimbledon, London, S.W.20. *l.*

1953 Riordan, B. D., 75, Blenheim Road, North Harrow, Middlesex. c.

1953 Rivers, C. F., F.R.E.S., 98, Windsor Road, Cambridge. *l (virus diseases of insects).*

1910 Robertson, G. S., M.D., "Struan", Storrington, near Pulborough, Sussex. *l.*

1949 Robinson, H. S., F.R.E.S., 7/9 Fifth Avenue, Singapore 10, Malaya. *l.*

1954 Robinson, P. J. M., B.SC., A.M.I.C.E., Homestead, Sandy Down, Nr. Lymington, Hants. *l.*

1951 Robson, J. P., 10, Vane Road, Barnard Castle, Co. Durham. *l.*

1953 Roche, C. G., A.C.A., 80, Princes Gate Mews, London, S.W.7. *hym.*

1942 Roche, P. J. L., M.R.C.S., L.R.C.P., F.R.E.S., c/o D.M.S., Lagos, Nigeria. *c, hem, e.l.*

1954 Rogers, G. B., 70, Faraday St., Hull, Yorks. *c, l.*

1953 Rose, Ian C., "Shrublands", Mistley, Essex. *ent.*

1932 Rudland, W. Lewis, F.R.E.S., 452, Hythe Road, Ashford, Kent. *l.*

1947 Rumsey, F., 46, Warren Road, Banstead, Surrey. *l.*

1949 Runge, C., 11, St. Andrews Road, Caversham, Reading, Berks. *l, hym.*

1952 Russwurm, A. D. A., F.R.E.S., 1, Langley Oaks Avenue, Sanderstead, Surrey. *l.*

1946 Saundby, Air-Marshal Sir Robert H. M. S., K.C.B., K.B.E., C.B., M.C., D.F.C., A.F.C., F.R.E.S., Oxleas, Burghclere, near Newbury, Berks. *l.*

1947 Saunders, J. M. K., 22, Francis Road, Pinner, Middlesex. *l (especially rh).*

1945 Saunt, J. W., A.L.S., " Riverview," Minerva Road, East Cowes, I.O.W. *hym, ent.*

1956 Schofield, Wing Comdr. C. H., Headley Hill, Bordon, Hants. *l, b.*

1927 Scott, Col. E., D.S.O., M.D., S.B.ST.J., "Suomi," Westwell, Ashford, Kent. *l.*

YEAR OF ELECTION.

1952 Scudder, G. G. E., B.SC., F.R.E.S., 1, Eltham Cottages, Station Road, Longfield, Dartford, Kent. *hem.*

1948 Sculthorp, A. H., 46, Pick Hill, Waltham Abbey, Essex. *c.*

1946 Self, K. W., 53b, Earls Avenue, Folkestone, Kent. *ent.*

1923 Sevastopulo, D. G., F.R.E.S., c/o Ralli Bros., Ltd., P/O Box 881, Mombasa, Kenya. *l.* (*Life Member*).

1951 Shaw, R. G., 5, Barnham Road, Chingford, London, E.4. *l, hem.*

1947 Short, H. G., M.SC., "Leaholme", 8, Milbourne Lane, Esher, Surrey. *l.*

1954 Showler, A. J., M.SC., 19, Harvel Crescent, Abbey Wood, London, S.E.2. *l.*

1948 Siggs, L. W., 10, Repton Road, Orpington, Kent. *l.*

1939 Siviter Smith, P., F.R.E.S., 21, Melville Hall, Holly Road, Edgbaston, Birmingham, 16. *l.*

1957 Skinner, B. F., 85, Elder Road, W. Norwood, S.E.27. *l.*

1948 Small, H. M., Armeria, Waterloo Lane, Skellingthorpe, Lincs *l, od.*

1952 Smith, A., 23, First Avenue, Heworth, York. *l, c.*

1953 Smith, D. S., F.R.E.S., 87, Willingdon Road, Eastbourne, Sussex. *l.*

1956 Smith, F. G., Shenstone Lodge, Cokes Lane, Chalfont St. Giles, Bucks. *l.*

1941 Smith, Lieut. Fdk. Wm., R.N.V.R., South Fawley Cottage, Wantage, Berks. *l, hym.* (*Life Member*).

1920-25 and 1939 Smith, S. Gordon, F.L.S., F.R.E.S., " Estyn," Boughton, Chester. *ent.*

1946 Southwood, T. R. E., B.SC., PH.D., A.R.C.S., M.I.BIOL., F.R.E.S., Imperial College Field Station, Silwood Park, Sunninghill, Nr. Ascot, Berks. *ent, hem, c, ecology.*

1949 Spencer, K. A., B.A., F.R.E.S., 19, Redington Road, London, N.W.3. *l, d.*

1947 Sperring, A. H., *Council*, Slindon, Fifth Avenue, Warblington, Hants. *l.*

1950 Spittles, C. E., 95, Tring Road, Aylesbury, Bucks. *l.*

1943 Spreadbury, W. H., 35, Acacia Grove, New Malden, Surrey. *nat. hist.*

1920-32 and 1938 Stafford, A. E., "Corydonis", 83, Colborne Way, Worcester Park, Surrey. *l.*

1953 Stallwood, B. R., 19, Southfield Gardens, Strawberry Hill, Twickenham, Middlesex. *l.*

1949 Stanley, F. C., F.R.E.S., "Swanmore", Bowes Hill, Rowlands Castle, Hants. *l, c.*

1927 Stanley-Smith, F., "Hatch House", Pilgrims Hatch, Brentwood, Essex. *l.*

1937 Stedall, H. P. P., Chiltern Manor, Great Missenden, Bucks. *ent.*

1942 Stidston, Eng. Capt. S. T., R.N., F.R.E.S., " Ashe," Ashburton, Devon. *l.*

1955 Stockley, R. E., 18 Leighton Gardens, Sanderstead, Surrey. *l.*

1956 Stoner, A. J., 12, Eshton Road, Eastbourne, Sussex. *l.*

1952 Storace, Luciano, Museo Storia Naturale, Via Brigata Liguria, 9, Genoa, Italy. *l.*

1924 Storey, W. H., Fairstead, Long Road, Cambridge. *ent.*

1945 Stoughton-Harris, G., m.a., f.c.a., f.r.e.s., "Rosegarth", Waldens Road, Horsell, Woking, Surrey. *ent.*

1948 Struthers, F. M., 143a, Gander Green Lane, Cheam, Surrey. *l.*

1929 Stubbs, G. C., Egremont House, Ely, Cambs., and Survey Office, Kuala Lumpur, Malaya.

1939 Summers, E. J., 45, Mulgrave Road, Sutton, Surrey. *c, hem.*

1934 Sutton, Gresham R., 6, Kenilworth Gardens, Loughton, Essex. *l, c.*

1950 Swain, H. D., m.a., f.r.e.s., 47, Dryburgh Road, Putney, S.W.15. *l, hy, c, hem.*

1950 Symes, H., m.a. (oxon), 52, Lowther Road, Bournemouth, Hants. *l.*

1916 Syms, E. E., f.r.e.s., f.z.s., 22, Woodlands Avenue, Wanstead, London, E.11. *n, orth, od, t.*

1942 Talbot de Malahide, The Lord, c.m.g., Malahide Castle, Dublin, Ireland. *l.*

1922-44 and 1952 Tams, W. H. T., f.r.e.s., 20, Ranelagh Avenue, Fulham, London, S.W.6. *ent.*

1950 Taylor, A. S., 364, Burley Road, Leeds 4. *l.*

1941 Taylor, H. G. W., 11, Old Forge Way, Sidcup, Kent. *l.*

1925 Taylor, J. Sneyd, m.a., f.r.e.s., P.O. Box 597, Port Elizabeth, South Africa. *l.*

1949 Temple, Miss Vere, f.r.e.s., King's Chase, Tollard Royal, Salisbury, Wilts. *l, hym, orth, od.*

1952 Thorn, Miss B. A., "Paviott", 16, Springfields, Broxbourne, Herts. *l.*

1952 Thornton, J., 43, Barnes Street, Clayton-le-Moors, Accrington, Lancs. *l.*

1950 Thorpe-Young, D. W., a.i.a.c., f.z.s., 11, Waverley Way, Carshalton Beeches, Surrey. *ent.*

1956 Tidmarsh, A. C. B., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l.*

1956 Tidmarsh, J. S. C., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l.*

1945 Timms, C., f.r.e.s., 524a, Moseley Road, Birmingham 12. *d.*

1953 Torlesse, Rear Admiral A. D., c.b., d.s.o., Trentham, Burton Joyce, Notts. *l.*

1948 Torstenius, Stig, Celsiusgatan 7, Stockholm K, Sweden. *l.*

1950 Trought, Trevor, m.a., f.r.e.s., Brookland, Tysoe, Warwickshire. *l.*

1918 Trundell, E. E. J., Sedge Cottage, Golf Club Road, Hook Heath, Woking, Surrey. *ent, l.*

1948 **Tubbs**, Mrs M., 9, Lingfield Road, Wimbledon Common, S.W.19. *rh.*

1947 **Tubbs**, R. S., O.B.E., F.R.I.B.A. (*Council*), 9, Lingfield Road, Wimbledon Common, S.W.19. *rh.*

1934 **Tunstall**, H. G., 11 St. James Avenue, Ewell, Surrey. *l.*

1940 **Turner**, A. D., 19, Manor Close, Kingsbury, London, N.W.9. *ent.*

1948 **Turner**, A. H., F.Z.S., F.R.E.S., F.R.MET.S., Forest Drove, Bickenhall, Hatch Beauchamp, Taunton, Somerset. *ent, insect migration, conchology.* (*Life Member.*)

1944 **Turner**, H. J., 4, Browning Avenue, Boscombe, Nr. Bournemouth, Hants. *l.*

1943 **Turner**, J. **Fincham**, 20, Kenley Walk, N. Cheam, Surrey. *l, hym.*

1953 **Tweedie**, M. W. F., M.A., C.M.Z.S., Raffles Museum, Singapore 6, Malaya. *l.*

1952 **Uffen**, R. W. J., F.R.E.S. (*Council*), 4, Vaughan Avenue, Stamford Brook, W.6. *l, hym, d.*

1945 **Valentine**, **Arthur**, Ivey House, West Shepton, Shepton Mallet, Somerset. *ent.*

1922-24, 1937-41, 1947 **Vallins**, F. T., A.C.I.I., F.R.E.S., *Council*, 4, Tattenham Grove, Tattenham Corner, Epsom, Surrey *Lycaenidae.* (*Life Member.*)

1951 **Varley**, Prof. G. C., M.A., PH.D., F.R.E.S., F.Z.S., Hope Dept. of Entomology, University Museum, Oxford. *hym, d.*

1951 **Viette**, P. E. L., Paris Museum (Entomology), 45 bis, R. de Buffon, Paris 5, France. *l.*

1955 **Vivian**, R. S. A., 143, St. Albans Road, Barnet, Herts. *l.*

1949 **Wade**, D., 17, Waldegrave Avenue, Holderness Road, Hull, Yorks. *l, orn.*

1929-31 and 1944 **Wainwright**, **Charles**, B.SC., F.R.I.C., 42, St. Bernards Road, Olton, Warwickshire. *l.*

1911 **Wakely**, Sir **Leonard** D., K.C.I.E., C.B., 37, Marryat Road, Wimbledon, London, S.W. 19. *l.*

1947 **Wakely**, L. J. D., O.B.E., M.A., Cottingley, Anderson Road, Madras. *l.*

1930 **Wakely**, S., *Council*, 26, Finsen Road, Ruskin Park, London, S.E.5. *l.*

1951 **Walker**, D. H., B.SC. (ENG.), 90, Whytecliffe Road, Purley, Surrey. *l.*

1953 **Wallis**, J. L. P., A.R.I.C.S., C.E. in C. Dept., Admiralty, Chamberlain Way, Pinner, Middx.

1935 **Wallis-Norton**, Capt. S. G., 2 Victoria Mansions, Eastbourne, Sussex. *ent.* (*Life Member.*)

1956 **Ward**, W. J. V., B.A., A.R.C.SC., "Haslemere", 23, Darlington Road, Stockton-on-Tees, Durham. *l.*

1936 **Warrier**, R. **Everett**, 99, Braidwood Road, London, S.E.6. *l.*

1939 **Watkins**, N. A., M.A., F.R.E.S., Soldon, Druid Road, Stoke Bishop, Bristol 9, Glos. *l.*

YEAR OF ELECTION.

1945 Watkins, O. G., F.R.E.S., 20, Torr View Avenue, Peverell, Plymouth, Devon. *l, od.*

1945 Watson, R. W., F.R.E.S., 15, Halstead Road, Bitterne Park, Southampton, Hants. *l.*

1926-27, 1928-38, 1948 Watts, W. J., F.R.E.S., 6, Capel Terrace, Southend-on-Sea, Essex. *c.*

1947 Weal, R. D., 124, Marmion Avenue, South Chingford, London, E.4. *c.*

1945 Webb, Harry E., F.R.E.S., 20, Audley Road, Hendon, London, N.W.4. *l.*

1957 Webb, N. G. G., Fernshaw, Rockfield Road, Oxted, Surrey. *l.*

1945 Weddell, B. W., 13, The Halve, Trowbridge, Wilts. *ent.*

1953 West, B. B., 1, Pond Square, London, N.6. *l, od.*

1947 West, B. K., Branksea, 193, Shepherd's Lane, Dartford, Kent. *l.*

1945 Wheeler, A. S., 26, Ashurst Road, Tadworth, Surrey. *l.*

1948 Whicher, L. S., F.R.E.S., A.I.AE.E., 6, Chisholm Road, Richmond, Surrey. *c.*

1954 Whitehead, J., 16, Westbourne Arcade, Bournemouth, Hants. *l.*

1946 Whitehorn, K. P., F.R.E.S., "Spindles", Windsor Road, Gravesend, Kent. *l.*

1920-30, 1955 Wightman, A. J., F.R.E.S., 67, The Spinney, Pulborough, Sussex. *l (noctuae)*

1946 Wildridge, W., "Flavion", Penn Road, Park Street, Nr. St. Albans, Herts. *ent.*

1955 Wilkinson, C., F.Z.S., F.R.E.S., "Sandbank", Thurlestone, Nr. Kingsbridge, S. Devon. *l.*

1947 Wilkinson, W., The Bungalow, Moor Lane, New Waverton, Nr. Chester. *ent, isoptera.*

1947 Williams, Mrs. D. M., Woodmanton, Mount Avenue, Hutton, Essex. *l.*

1945 Williams, E. F., F.R.E.S., Woodmanton, Mount Avenue, Hutton, Essex. *l.*

1957 Williams, E. O., M.A., F.R.C.S., M.R.C.O.G., "Bonners", Hambledon, Surrey *l.*

1947 Williams, E. P., Woodmanton, Mount Avenue, Hutton, Essex. *l, od.*

1925 Williams, H. B., Q.C., LL.D., F.R.E.S., West Moushill, Milford, Nr. Godalming, Surrey. *l, g.*

1948 Williams, L. H., PH.D., B.SC., 31, Armour Road, Tilehurst, Reading, Berks. *ent.*

1932 Williams, S. W. C., 17, Beresford Road, Chingford, London, E.4. *l.*

1951 Wood, E. F., 18, Nursery Road, Prestwich, near Manchester, Lancs. *l.*

1956 Woodward, R. J., 65, Valleyfield Road, Streatham, S.W.16. *rh.*

1927 Worms, C. G. M. de, M.A., Ph.D., F.R.I.C., F.R.E.S., M.B.O.U., *Council*, "Three Oaks", Shore's Road, Horsell, Woking, Surrey. *l*, *orn*.

1957 Wright, A. E., 9, Albert Court Mansions, Kensington, London, S.W.7. *rh*, *esp. Satyridae*.

1955 Wright, David, Whitehill House, Whitehill, Bordon, Hants. *l*.

1949 Wrightson, A. L., 93, Morse Street, Lower Brunshaw, Burnley, Lancs. *l*.

1945 Wykes, N. G., Carter House, Eton College, Windsor, Berks. *l*.

1951 Wynn, R. A. W., 14, Nursery Avenue, Hale, near Altrincham, Cheshire. *ec. ent*, *hem*.

1945 Youden, George H., F.R.E.S., 18, Castle Avenue, Dover, Kent. *l*

1950 Young, Miss G. M., 31, Turnpike Lane, London, N.8. *l*.

1952 Young, L. D., 55 , Ottways Lane, Ashtead, Surrey. *ent*.

Members will greatly oblige by informing the Hon. Secretary of any errors in, additions to, or alterations required in the above addresses and descriptions.

Geographical List of Members arranged under Country, County and Town in Alphabetical Order

ENGLAND.

BEDS.
Leighton Buzzard.
Reid, J. F.

BERKS.
Finchampstead.
Hyde, R. A.
Mortimer.
Easton, N. T.
Newbury.
Saundby, R. H. M. S
Reading.
Baker, B. R.
Dolton, H L.
Runge, C.
Williams, L. H.
Sunninghill.
Southwood, T. R. E.
Wallingford.
Newman, D. E.
Wantage.
Smith, F. W.
Windsor.
Halstead, D. G. H.
Wykes, N. G

BUCKS.
Aylesbury.
Spittles, C. E.
Bletchley.
Kershaw, S. H.
Richardson, N. A.
Chalfont St. Giles.
Smith, F. G.
Chalfont St. Peter.
Ansorge, E.
Great Missenden.
Stedall, H. P. P
High Wycombe.
Oliver, G. B.
Oliver, G. H. B
Newport Pagnell.
Cripps, C. H.

CAMBS.
Cambridge.
Carter, R. A.
Raven, C. E.
Rivers, C. F.
Storey, W. H.
Ely.
Harvey, J. G.
Wisbech.
Elgood, W. S

CHESHIRE
Altrincham
Wynn, R. A. W
Bebington.
Prichard, R
Caldy.
Clarke, C. A
Chester.
Smith, S G
Nantwich.
Boyes, J. D. C
New Waverton.
Wilkinson, W.
Northwich.
Crewdson, R. C. R
Stalybridge.
Charlson, S
Wilmslow.
Kloet, G. S
Wirral.
Hardy, D. E.

CUMBERLAND.
Brampton.
Johnson, G F.
Carlisle.
Day, F. H
Penrith.
Davidson, W. F.
Hervey, G. A. K

DERBYSHIRE.
Derby.
Atherly, Miss M
Ilkeston.
Blasdale, P

DEVON.
Ashburton.
Kennard, H. A.
Stidston, S. T.
Axminster.
Bliss, A.
Bishopsteignton.
Coleridge, W. L
Kingsbridge.
Wilkinson, C.
Plymouth.
Watkins, O. G.
Sampford Peverell.
Lyon, F. H.

Torquay.
Lees, F. H.
Totnes.
Atkinson, J. L

DORSET.

Broadmayne.
Philpott, V. W
Dorchester.
Lisney, A. A

DURHAM.

Barnard Castle.
Robson, J. P.
Chester-le-Street.
Dunn, T. C.
Gateshead.
Montgomery, J. R. P.
Stockton-on-Tees.
Ward, W. J. V.
Sunderland.
Jefferson, T. W.

ESSEX.

Brentwood.
Stanley-Smith, F.
Colchester.
Blaxill, A. D.
Firmin, J.
Ives, D. H.
Pearson, A. J. R.
Harlow.
Forster, H. W.
Hornchurch.
Rawlings, C. J.
Hutton.
Williams, E. P.
Williams, Mrs. E. P.
Williams, E. F.
Loughton.
Lockington, N. A.
Payne, R. M.
Sutton, G. R.
Mistley.
Rose, I. C.
Rayleigh.
More, D.
Shenfield.
Friedlein, A. F. E.
Southend-on-Sea.
Watts, W. J.
Southminster.
Dewick, A. J.
Waltham Abbey.
Sculthorp, A. H.
Westcliff-on-Sea.
Huggins, H. C.

GLOS.

Bourton-on-the-Water.
Renfrew, C.
Bristol.
Bell, C. L.
Ellison, E. F. D.
Hinton, H. E.
Watkins, N. A.
Hardwicke.
Demuth, R. P.
Minchinhampton.
Richardson, A
Stroud.
Peacey, A. F.
Tetbury.
Newton, J.

HANTS.

Alton.
May, J. T.
Andover.
Maxwell, R. M.
Basingstoke.
Goodliffe, F. D
Bishopstoke.
Ray, H
Bordon.
Schofield, C. H
Wright, D.
Bournemouth.
Brown, S. C. S
Curtis, W. P.
Redgrave, A. C. R.
Symes, H.
Turner, H. J.
Whitehead, J.
Burley.
Mackworth-Praed, C. W
Christchurch.
Barton, B. C.
Carr, F. M. B.
Eastleigh.
Curl, B. J. A.
Farnborough.
Parfitt, R. W.
Fleet.
Richards, A. W
Fordingbridge.
Burton, P. J
Gosport.
Burns, B. S.
Liss.
Brooke, W. M. A.
Lymington.
Farwell, I. G.
Micheldever.
Dixon, C H.
North Warnborough.
Potter, N. B.

Portsmouth.
Langmaid, J. R
Romsey.
Ransome, A. L
Rowlands Castle.
Stanley, F. C.
Sandy Down.
Robinson, P. J. M
Southampton.
Watson, R. W.
Warblington.
Sperring, A. H
Winchester.
Blyth, S. F. P.
Ffennell, D. W. H.

HERTS.
Arkley.
Howarth, H.
Howarth, T. G.
Barnet.
Calderara, P
Vivian, R. S. A.
Bishop's Stortford.
Allan, P. B. M.
Ashwell, D. A
Craufurd, C.
Mellows, C
Broxbourne.
Thorn, B. A
Kings Langley.
Dunk, H. C
Redbourn.
Bowden, S. R.
St. Albans.
Byers, F. W.
Edwards, G. G
Wildridge, W
Tring.
Goodson, A. L

HUNTS.
Wood Walton.
Leeds, H. A.

I. OF WIGHT.
Cowes, East.
Saunt, J. W.

KENT.
Ashford.
Cue, P.
Duffield, C. A. W
Rudland, W. L.
Scott, E.
Aylesford.
Davis, G. A. N.
Beckenham.
Lane, A. W.
Bexley.
Ford, L. T.
Newman, L. H.
Borough Green.
McDermott, C. A.
Boxley.
Frazer, J. F. D.
Broadstairs.
Harbottle, A. H. H
Bromley.
Cox W A A.
Jacobs, S. N. A
Dartford.
Hare, E. J.
Scudder, G. G. E
West, B. K
Deptford.
Murray, E. G.
Ditton.
Llewelyn, J. R.
Dover.
Youden, G. H
East Malling.
Massee, A. M.
Folkestone.
Morley, A. M
Self, K. W.
Gravesend.
Whitehorn, K. P.
Littlebourne.
Marsh, D. G.
Maidstone.
Grant, F. T.
Meopham.
Pounce, A. G
Orpington.
Gowing-Scopes, E
Line, H. V.
Siggs, L. W.
Otford.
Manley, W. B. L.
Manley, Mrs. W. B. L
Petts Wood.
Taylor, J. O
Ramsgate
Lanfear, A. H
Sandhurst.
Bull, G. V
Sevenoaks
Busbridge, W. E
Shortlands.
Morris, M. G
Sidcup.
Ling, R. B.
Taylor, H. G. W
St. Mary Cray.
Chatelain, R. G
Tunstall.
Allen, P. V. M.

Westerham.
Edwards, R. C.
West Wickham.
Chalmers-Hunt, M
Owen, G. V.
Wilmington
Honeybourne, T. J.

LANCS.
Accrington.
Thornton, J.
Blackburn.
Bryce, D.
Bolton.
Coxey, S.
Burnley.
Wrightson, A. L.
Formby.
Leech, M. J.
Grange-over-Sands.
Heath, J.
Manchester.
Michaelis, H. N.
Wood, E. F.
Nelson.
Brindle, A.
Jopson, F. L.
Southport.
Greenwood, K. C.

LEICESTERSHIRE.
Market Harborough.
Buckler, H. A.

LINCS.
Grantham.
Platts, J. H.
Grimsby.
Jeffs, G. A. T
Lincoln.
James, B. C.
Market Rasen.
Court, T. H.
Scunthorpe.
Gooseman, M. P.
Skellingthorpe.
Small, H. M.

LONDON.
E.4. *Chingford.*
Pinniger, E B.
Shaw, R. G.
Weal, R. D.
Williams, S. W. C.
E.7. *Forest Gate.*
Baxter, L. N.
Baxter, R. N.
E.11. *Wanstead.*
Butterfield, A. W.
Syms, E. E.
N.1. *Canonbury.*
Buck, F. D.
N 3. *Finchley.*
Griffiths, G. C. D.
N 6. *Highgate.*
West, B. B
N 8. *Hornsey.*
Young, G. M
N.10. *Muswell Hill.*
Chevallier, L. H. S
N.12. *Finchley.*
Cross, G. S. E
N.19. *Upper Holloway.*
Knight, F.
N.20. *Whetstone.*
Lorimer, R. I
Lovell, R.
N.W.1. *Regent's Park.*
Hemming, A. F
N.W.3. *Hampstead.*
Carter, C. I.
Keith-Johnston, C.
Spencer, K. A
N W.4. *Hendon.*
Webb, H. E.
N.W.6. *Hampstead.*
Hillaby, J. D
N.W.7. *Mill Hill.*
Goater, B.
Howard, A. P.
N.W.8. *Regent's Park.*
Ashby, G. J
Hall, S. S.
Leston, D.
N.W.9 *Kingsbury.*
Turner, A. D.
S.E.2. *Abbey Wood.*
Showler, A. J
S.E.3. *Blackheath.*
Gould, A. W.
S.E.5. *Ruskin Park.*
Wakely, S
S.E.6. *Catford.*
Warrier, R. E
S.E.18. *Plumstead.*
Ashby, F. A.
Hards, C. H.
Popham, W J
S.E.21. *Dulwich.*
Edwards, T. G
S.E.24. *Herne Hill.*
Imber, S. F.
S.E.25. *South Norwood.*
Cornelius, J. A
Lewis, E.
Nissen, C. L
S.E.26. *Sydenham.*
Cornelius, J. A.
S.E.27. *W. Norwood.*
Skinner, B. F.

S W 1 *Westminster.*
Gordon, D. J.
Harrison-Gray, M
Marsh, J. C. S.
Matthews, D. P. L
Prideaux, A. G
S W.2. *Tulse Hill.*
Hawgood, D. A.
Newton, J. L.
S.W.3. *Chelsea.*
Cadbury, B.
Cork, C. H.
S W.6. *Fulham.*
Tams, W. H. T.
S.W.7 *S. Kensington.*
Evans, E.
Richards, O. W.
Roche, C. G.
Wright, A. E.
S.W.11. *Battersea.*
Mansell, G. H.
S.W.13. *Barnes.*
Hodgkinson, A.
S.W.15. *Putney.*
Swain, H. D.
S.W.16. *Streatham.*
Christie, J.
Christie, L.
Woodward, R. J.
S.W.17. *Tooting.*
Allen, D. M.
S.W.18. *Wandsworth.*
Hall, D. G.
Michaud, J.
W.2. *Bayswater.*
Hornabrook, R. W.
W.5. *Ealing.*
Hanson, S. M.
W.6. *Hammersmith.*
Uffen, R. W. J.
W.8. *Kensington.*
Craske, R. M.
W.9. *Maida Hill.*
Peters, W.
W.14. *W. Kensington.*
Wiffen, R. C. G.
W.C.1.
Feilden, G. St. Clair.
Janson, D. B.

MIDDLESEX.

Bedfont.
Kindred, A. D.
Eastcote.
Goodban, B. S.
Edgware.
Akester, W. J.
Enfield.
Eagles, T. R.
Feltham.
Classey, E. W.
Harrow.
Martin, E. L.
Riordan, B. D.
Hayes.
Moppett, A. A.
Hounslow.
Gerard, B. McC
Isleworth.
Bradley, J. D.
Pinner.
Minnion, W. E.
Saunders, J. M. K
Wallis, J. L. P.
Ruislip.
Alford, D. V.
Stanmore.
Harris, W. H. A.
McCrae, A. W. R.
Teddington.
Ferguson, L. F.
Twickenham.
Stallwood, B. R.

NORTHANTS.

Peterborough.
Pooles, S. W. P
Roade.
Humphrey, S. W.
Wellingborough.
Gent, P. J.
Payne, J. H.

NOTTS.

Burton Joyce.
Torlesse, A. D.

OXFORDSHIRE.

Oxford.
Bailey, K. E. J.
Ford, E. B.
Kettlewell, H. B. D.
Varley, G. C.

SOMERSET.

Burnham-on-Sea.
Heslop, E. A.
Heslop, I. R. P.
Clevedon.
Bird, H. W.
Frome.
Cruttwell, G. H. W
Taunton.
Turner, A. H.
Weston-super-Mare.
Blathwayt, C. S. H
West Shepton.
Valentine, A.

STAFFORDSHIRE.
Wolverhampton.
Currie, P. W. E

SUFFOLK.
Ipswich.
Beaufoy, S.

SURREY.
Ashtead.
Brush, H. J.
Young, L. D.
Banstead.
Gardner, A. E.
Gates, M. D. C.
Last, H. R.
Perry, K. M. P.
Rumsey, F.
Carshalton.
Groves, E. W.
Carshalton Beeches.
Thorpe-Young, D. W.
Cheam.
Baker, D. B.
Struthers, F. M.
Turner, J. F.
Chiddingfold.
Mere, R. M.
Chipstead.
Bolton, E. L.
Churt.
Baker, J. A.
Claygate.
Maitland-Smith, G.
Perkins, J. F.
Clevedon.
Bird, H. W.
Cobham.
Purefoy, J. B
Coulsdon.
Denvil, H G.
Ferrier, W. J.
Coulsdon (Old).
Britten, H.
Cranleigh.
Collier, A. E.
Croydon.
Jacoby, M. C.
Dorking.
Cole, G. A.
Haynes, R. F.
Howard, J. O. T.
Epsom.
Vallins, F. T.
Esher.
Brett, G. A.
Craske, J. C. B.
Ennis, L. H.
Short, H. G.
Ewell.
Tunstall, H. G.
Ewell (East).
Lang, R. M.
Farnham.
Moore, B. P.
Fetcham.
Hickin, N. E.
Frensham.
Gurdon, J. B.
Guildford.
Garland, W. A
Hambledon.
Williams, E. O.
Haslemere.
Tidmarsh, A. C. B
Tidmarsh, J. S. C.
Hersham.
Moore, D. R
Horsley (East).
Crow, P. N.
Kingswood.
Coxon, G. F
Leigh.
Fairclough, R
Merton Park.
Coulson, F. J
New Malden.
Spreadbury, W H
Ottershaw.
Bretherton, R. F
Parsons, R. E. R
Oxted.
Webb, N. G. G.
Pirbright.
Lawson, H. B
Purley.
Henderson, J. L
Walker, D H
Redhill.
Rait-Smith, W
Richmond.
Phelps, C. C.
Whicher, L. S.
Sanderstead.
Russwurm, A. D. A
Stockley, R. E
Selsdon.
Foster, T. B
Stoneleigh.
Hutchings, H. R
Sutton.
Bolingbroke & St. John
Danby, G. C.
Frohawk, M. J
Summers, E. J

Tadworth.
Wheeler, A. S
Thornton Heath.
Parmenter, L
Wallington.
Brown, F. C
Niblett, M.
Weybridge.
Best. A. A.
Messenger, J. L
Wimbledon.
Dacie, J. V.
Hawkins, C. N.
Jarvis, C. McK.
Riley, N. D.
Tubbs, M.
Tubbs, R. S.
Wakely, L. D.
Woking.
Stoughton-Harris, G.
Trundell, E. E. J.
Worms, C. G. M. de.
Worcester Park.
Hyde-Wyatt, B.
Richardson, A. E.
Stafford, A. E.

SUSSEX.
Arundel.
Haggett, G. M.
Billingshurst.
Curtis, A. E.
Bognor Regis.
Clark, J.
Jarvis, F. V. L.
Brighton.
Banner, J. V.
Dyson, R. C.
Buxted.
Odd, D. A.
Chichester.
Boyce, B.
Eastbourne.
Ellison, E. F. D.
Ellison, R. E.
Marcon, J. N.
Smith, D. S.
Stoner, A. J.
Wallis-Norton, S. G.
East Preston.
Higgins, W. J.
Ferring-by-Sea.
Menzies, I. S.
Hailsham.
Manley, G. E. L.
Hastings.
Astbury, C. F.
Homer, T. J. G.
Horsham.
Langton, P. H.
Horsted Keynes.
Hoare-Ward, J. W.
Hove.
Beard, J. W.
Littlehampton.
Jay, E. P.
Newick.
Embry, B.
Pulborough.
Robertson, G. S.
Wightman, A. J
Ringmer.
Gully, J. G.
Wisborough Green
McClure, A. M
Worthing.
Edwards F. H

WARWICKSHIRE.
Birmingham.
Bowater, W.
Evans, L. J.
Hammond, H. E
Noble, F. A.
Siviter Smith, P
Timms, C.
Olton.
Wainwright, C
Solihull.
Allen, D.
Carlier, S. E. W
Price, G C.
Stoke Golding.
Murray, D. P
Tysoe.
Trought, T.

WESTMORLAND.
Kendal.
Birkett, N. L.

WILTS.
Ramsbury.
Fraser, R. A
Salisbury.
Temple, V.
Tilshead.
Gilman, H. C. R.
Trowbridge.
Weddell, B. W.
Warminster.
Jackson, R. A.

WORCESTERSHIRE.
Evesham.
Burton, R. J
Redditch.
Latham, F. H.

YORKS.

Doncaster.
Hyde, G. E.

Dronfield.
Fearnehough, T. D

Hull.
Rogers, G. B.
Wade, D

Leeds.
Iles, P.
Taylor, A. S.

Sheffield.
Reid, W.

Shipley.
Hewson, F.
Kemp, J. K. C

York.
Smith, A

IRELAND.

CO. DUBLIN.

Dublin.
Talbot de Malahide.

Glenageary.
Baynes, E. S. A

SCOTLAND.

ABERDEENSHIRE.

Aberdeen.
Morison, G. D.

DUMFRIES-SHIRE.

Collin.
Balfour-Browne, W. A. F.

Dumfries.
Cunningham, D.

FIFE.

St. Andrews.
Jackson, D. J.

INVERNESS-SHIRE.

Newtonmore.
Harper, G. W.
Harper, M. W.

MIDLOTHIAN.

Edinburgh.
Dunbar, J. G.
Macnicol, D. A. B.
Pelham-Clinton, E. C.

WALES.

GLAMORGAN.

Port Talbot.
Morgan, H. D.

ABROAD.

EUROPE.

Austria.
Klimesch, J.

Czechoslovakia.
Polacek, V. B.

Denmark.
Carolsfeld-Krause, A. G.
Olsen, E. T.

France.
Herbulot, C.
Viette, P. E. L.

Germany.
Lipscomb, C. G.

Italy.
Storace, L.

Sweden.
Torstenius, S.

AFRICA.

Cape Province.
Taylor, J. S.

Ghana.
Ives, D. H.

Kenya.
Sevastopulo, D. G.

Nigeria.
MacNulty, B. J.
Roche, P. J. L.

Rhodesia.
Daly, D. W.

Tanganyika.
Dudbridge, B. J.

Zululand.
Fraser, F. C.

AMERICA.

Argentina.
Hayward, K. J.

Canada.
Beirne, B. P.

Connecticut (U.S.A.).
Gifford, W. S.

New York.
Klots, A. B.

ASIA.
- *Hong Kong.*
  - Burkhardt, V. R
- *India.*
  - Wakely, L. J. D
- *Japan.*
  - Asahina, S
- *Malaya.*
  - Robinson, H. S.
  - Stubbs, G. C.
  - Tweedie, M. W. F

AUSTRALIA
- *New South Wales.*
  - O'Farrell, A. F
- *Tasmania.*
  - Couchman, L. E

COUNCIL'S REPORT for 1956

Your Council has pleasure in reporting another satisfactory year. On the 31st December last the membership of the Society stood at 501, which is an increase of 2 over the number at the same time last year, and is composed of 1 Honorary, 3 Special Life, 14 Life, 231 Ordinary and 252 Country Members. During the year 7 members died. These were Dr. E. A. Cockayne, Mr. A. R. Davidson, Mr. S. P. Doudney, Mr. F. T. Gilliat, Dr. Harold King, Mr. B. B. Snell and Mr. J. Antony Thompson. Dr. Cockayne was twice President of the Society and was elected an Honorary Member in 1950. He will be remembered for his many contributions at the Society's meetings, and for his services to entomology in general.

Other changes in membership were the election of 30 new members, the resignation of 12, and the removal of 9 whose subscriptions were overdue.

The Proceedings and Transactions for 1954/55 were published in May, 1956, and contained xl + 210 pages, 17 plates (1 coloured) and 39 text figures. The 1955 volume is well advanced and should be available at an early date. This will include three plates of lepidopterous larvae not included in Buckler's Larvae of British Butterflies and Moths. In future, the practice of including two years in the date of every volume will be discontinued and only the main year will be used.

Your Council has great pleasure in expressing the Society's gratitude to the Council of the Royal Society for a grant of £150 from the Scientific Publications Grant-in-aid towards the cost of producing the two volumes just mentioned.

The storage of the Society's stock of Proceedings, always a problem, has now been solved by the generosity of Mr. E. Gowing-Scopes, who has offered storage in his business premises at Charing Cross. All volumes are now parcelled and protected from deterioration, and are so arranged that any required part can be easily obtained, if in stock. We are most grateful to him for this service and for the assistance, so willingly given by him and his staff, in the dispatch of the Proceedings as published.

The Annual Dinner was held in the Cambridge Room of the Abercorn Rooms. The Ballroom of the Waldorf Hotel had been reserved as in the previous two years, but notification in May of a considerable increase in charges forced the change. The guests of the Society were Professor and Mrs. Wigglesworth, Dr. and Mrs. Hobby, Mr. and Mrs. Loarridge of Cosford Mill and the Rev. C. E. Tottenham. The occasion was most enjoyable, despite the fact that the attendance fell to 46. Your Council has been compelled to take notice of the trend towards a waning interest in this event, and has reluctantly decided to omit the Dinner from the 1957 programme.

After such an indifferent summer, the number and high quality of the exhibits at the Annual Exhibition was most gratifying. Although the weather was so bad, it was a good year for migrant moths, and this was demonstrated by the number of migratory species exhibited. The Orders for special attention were the Neuroptera and Orthoptera, and workers on these Orders arranged a most meritorious and representative collection. The Zoological Society of London once more exhibited a selection of spiders, centipedes, millipedes, mantids, batrachians and reptiles. Mr. Tams and Mr. Howarth once more devoted much of their time to the selection and photographing of interesting specimens suitable for illustrations in the Proceedings. There was again a good attendance; 335 signed the Attendance Register.

The usual 21 Ordinary Meetings were held during the year, and many interesting evenings resulted from the programme arranged by Mr. Howarth, to whom we are all indebted. The lanterns and epidiascope continue to be in frequent demand at these meetings, but there is a tendency for exhibits to be fewer. Members are reminded that small exhibits, accompanied by a few relevant remarks, have always been an important feature of our Ordinary Meetings, and give great pleasure to everybody. The average attendance continues to improve. There is no doubt that this is due in no small measure to the improved amenities of Pepys House, and it is reassuring to witness the spirited discussions which have, once more, become a feature of the hour before the start of the meeting.

A very interesting programme of Field Meetings had been arranged by Mr. S. Wakely, several new localities appearing in a list of 27 meetings. Our thanks are due to him for his tireless efforts in completing the arrangements, and seeing them carried through to the end of the season. We are also grateful to the leaders who take the responsibility of conducting the parties and writing a report for publication. Most particularly we wish to thank those ladies who so graciously entertained the parties to tea in their homes. This year tea was provided by Mrs. Loarridge, Mrs. Mere, Mrs. Odd, Mrs. Manley and Mrs. Bretherton when meetings were held in their neighbourhood.

The Curator reports that during 1956 the Society's collections have been greatly enriched by a number of new and valuable specimens, and satisfactory progress has been made with the maintenance and improvement of existing material.

Early in the year, the Society was fortunate in being given the Harold King collection of Macrolepidoptera, housed in three cabinets. Many rare species are represented, those of special interest being: *Lycaena phlaeas* (L.) ab. *schmidtii* Gerhard with the hind-wings *radiata* Tutt; *Daphnis nerii* (L.) taken at Portland Harbour; and a series of the rare Geometer *Lampropteryx otregiata* Metcalf. As far as possible, the King specimens are being absorbed into the Society's existing collection and work on this is fairly advanced.

During the year, considerable progress has been made in transferring the Andrews collection of British Diptera from store-boxes to a suitable cabinet, and this work is nearly complete. Twenty-five drawers, containing over eleven hundred species, represented by about twelve thousand specimens, have been filled and the contents catalogued.

The Society is indebted to many members for their generosity in presenting specimens, species of special interest being: *Lixus algirus* (L.) Col., Curculionidae, in bananas at Hampstead (Mr. T. R. Eagles); a series of *Heterographis oblitella* (Zett.) Lep., Phycitidae (Mr. H. C. Huggins); *Palpita unionalis* (Hb.) Lep., Pyraustidae; Continental examples of *Synvaleria oleagina* (Schiff.) and *Meganephria bimaculosa* (L.) Lep., Caradrinidae (Mr. E. J. Trundell).

Donations of specimens were also made by Miss C. A. McDermott (Hymenoptera), Dr. J. L. Newton (Dictyoptera), Mr. F. D. Buck (Coleoptera), Mr. A. E. Gardner (Coleoptera, Hymenoptera and Odonata), Mr. J. G. Harvey (Lepidoptera), Mr. C. N. Hawkins (Dictyoptera), Mr. E. C. Pelham-Clinton and Mr. J. H. Robson (Lepidoptera), Mr. F. Rumsey (Trichoptera), Mr. H. D. Swain (Ephemeroptera, Hymenoptera, Trichoptera, Orthoptera and Neuroptera), Mr. F. T. Vallins (Lepidoptera) and Mr. R. D. Weal (Neuroptera). The best thanks of the Society are due to these members and to Mr. W. Bunting, who is not a member, for a gift of introduced Dictyoptera.

During the coming year, it is proposed to provide a spot-light to facilitate the critical examination of specimens by members, and it is hoped to overhaul and add to the collection of Odonata and Coleoptera.

Valuable assistance has been rendered by the Assistant Curator, Mr. R. D. Weal, and your Curator wishes to express his appreciation of valuable help given by specialist members and the Staff of the British Museum (Natural History) in identifying material.

The Librarian reports that during 1956 much progress has been made towards bringing the card index up-to-date. A detailed list of our stock of Proceedings of other Societies, British and Foreign, has been drafted. Mr. Vallins and the Librarian have devoted several days to these tasks, which are such that the Librarian would have had great difficulty in tackling them alone.

The Society is indebted to the following members for the gift of books, etc.: Mr. H. L. Dolton (Kirby, *The Butterflies and Moths of Europe*), Mr. S. N. A. Jacobs (Further fascicles of Lhomme, *Catalogue des Lepidoptères de France et de Belgique* and Tome XV, Nos. 4 and 5, of *Revue Francaise de Lepidopterologie*), Mr. Martin C. Jacoby (Martin Jacoby, *Coleoptera, Vol. I Chrysomelidae, Fauna of British India*), Rev. Desmond Murray, O.P. (His own work, *Species Revalued*) and Mr. E. E. Syms (Muller und Kautz, *Pieris bryoniae und Pieris napi*).

The following works have been purchased, mostly out of the proceeds of the sale of surplus books:—Alvah Peterson, *Larvae of Insects*, Parts I and II, and *Manual of Entomological Technics*; Clapham, Tutin and Warburg, *Flora of the British Isles*; Dr. H. F. Barnes, *Gall Midges,* Vols. IV, V, VI, VII (the Society now has all the volumes issued); Wolfgang Stichel, the first 14 parts of *Illustrierte Bestimmungstabellen der Wanzen, Hemiptera-Heteroptera Europae*; Bryan P. Beirne, 1955, *Collecting, Preparing and Preserving Insects*; Nordstrom, Wallgren & Tullgren, *Svenska Fjarilar*; Desmond P. Murray, *South African Butterflies: A Monograph of the Family Lycaenidae*; Tuxen, *Taxonomist's Glossary of Genitalia of Insects*; Bradley and Martin, *An Illustrated List of the British Tortricidae,* Part I.

New exchange agreements have been completed with Museo Civico di Storia Naturale from whom we now receive *Annali Museo Civico Storia Naturale Genova* and *Doriana*, and Tulane University, New Orleans, who send us *Tulane Studies in Zoology.*

Other additions to the Library during 1956 are:—

By gift:—Royal Ent. Soc. Lond., *Transactions and Proceedings of* that Society, 1954.

By Purchase or Exchange:—Entomologist; Entomologist's Monthly Magazine; Entomologist's Gazette; Entomologist's Record; Canadian Entomologist; Entomological News; Tydschrift voor Entomologica; Opuscula Entomologica; Zoologiska Bidrag; Mitteilungen; Beitrage Zur Entomologie; Lloydia; Wisconsin Academy of Science, Trans.; Fieldiana, Zoology; Bulletin, Société Entomologique de Belgique; Essex Naturalist; London Naturalist and Bird Report; Proc. I.O.W. Nat. Hist. Soc.; Lincolnshire Nat. Union; Norfolk and Norwich Nat. Soc. Trans.; Natural History, New York; Smithsonian Institute Reports.

TREASURER'S REPORT for 1956

The accounts which I am about to read to you show that the financial affairs of the Society were again satisfactory in 1956, and the income for the year was a trifle more than sufficient to cover expenses of every kind without drawing upon accumulated revenue, or upon capital.

CAPITAL ACCOUNT.

The only expenditure charged to this account is the cost of a Projector and fittings, amounting to £32 19s 0d. This will soon pay for itself by saving the hire of a similar instrument, now so frequently required at meetings. The balance of the Fund now stands at £1,332 7s 10d.

BALANCE SHEET.

The investments remain the same as last year. Their market value at 31st December had fallen to £1,349, which, however, is still more than the Fund which they represent. Our cash position is strong, with £535 17s 10d at the bank and in hand, nearly £180 more than the year before.

INCOME AND EXPENDITURE ACCOUNT.

Income from subscriptions at £605 13s 6d and investment interest, £68 9s 5d, are both the highest figures to appear in our accounts for these items, and £20 more than in 1955. Against this the expenses increased by roughly £10, and after a transfer of £415 to the Publication Fund there is a surplus for the year of £9.

PUBLICATION FUND.

Through the good offices of the Royal Society we received £150 from the Parliamentary Grant in Aid of Scientific Publications. Donations amounted to £9 12s 0d and the blocks for two plates, the cost of which I do not know exactly, were given by Mr. K. A. Spencer. I am glad of this opportunity of renewing my thanks to the donors. The cost of production of the "Proceedings" for 1955 is estimated at £559 10s 0d.

LIBRARY FUND.

The entrance fees of twenty-nine new members (£10 17s 6d) go to this Fund, and in addition £61 12s 6d was realised by the sale of surplus books. £42 1s 5d was expended on new books and binding periodicals, leaving a balance of nearly one hundred pounds in the Fund, so that no grant from revenue has been necessary this year.

Mr F. Stanley-Smith and Mr. G. Stoughton-Harris were again our honorary auditors, and have earned our thanks for their good offices.

BALANCE-SHEET at 31st December 1956.

Capital Fund—		
General	£1,027 8 1	
Publication	304 19 9	
		£1,332 7 10
Special Funds—		
Library	£99 18 6	
Publication	1 0 10	
		100 19 4
Subscriptions Paid in Advance		42 8 0
Sundry Creditors		542 15 3
Income and Expenditure Account—		
Balance at 1st January 1956	£303 5 6	
Add Excess of Income over Expenditure for the Year	9 0 0	
		312 5 6
		£2,330 15 11

Note. The Society's Books, Cabinets, Furniture, etc., are Insured for £2,000 and the Hon. Secretary's Office Equipment for £100.

Investments at Cost—		
General (including Ashdown, Lachlan-Gibb, Lile, Robert Adkin, Fountaine, Hugh Main, and Labouchere bequests).		
£591 15s 3d 3½% Conversion Stock ...	£545 11 6	
£100 0s 0d 3% Defence Bonds ...	100 0 0	
£600 0s 0d 2½% Consolidated Stock	417 17 0	
£400 0s 0d 4% Consolidated Stock	372 1 0	
Publication (gift of the late Misses E. F. and L. M. Chapman in memory of their brother).		
£300 0s 0d 3½% War Stock	304 19 9	
		£1,740 9 3
Note.—Market value at 31st December 1956—£1,349.		
Sundry Debtors		54 8 10
Cash at Bank—		
Deposit Account	£509 1 10	
Current Account	16 3 9	
		525 5 7
Cash in Hand		10 12 3
		£2,330 15 11

Audited and found correct.
F. STANLEY-SMITH.
G. STOUGHTON-HARRIS, F.C.A.
24th January 1957.

J. L. HENDERSON, Hon. Treasurer.

INCOME AND EXPENDITURE ACCOUNT—Year ended 31st December 1956.

Rent of Rooms	£132 18 2		Subscriptions (arrears and current)		£605 13 6
Insurance	2 3 7		Interest		
Cleaning and Gratuities	1 17 6		£591 15s 3d 3½% Conversion Stock ...	£20 14 2	
Secretarial Expenses	73 11 10		£100 0s 0d 3% Defence Bonds ...	3 0 0	
Treasurer's Expenses	11 1 0		£600 0s 0d 2½% Consolidated Stock	15 0 0	
		£221 12 1	£400 0s 0d 4% Consolidated Stock	16 0 0	
			Deposit Interest	13 15 3	
					68 9 5
Subscriptions to Wicken Fen Fund, Footpaths Preservation Society, Ramblers' Association, National Trust, Field Studies Council, and Conservators of Oxshott Heath		7 7 0			
Annual Exhibition Expenses		12 16 3			
Annual Dinner Expenses		8 7 7			
Grant to Publication Fund		415 0 0			
Balance, being Excess of Income over Expenditure, carried to Balance Sheet		9 0 0			
		£674 2 11			£674 2 11

CAPITAL ACCOUNT—Year ended 31st December 1956.

Projector and Fittings Purchased	£32 19 0	Balance at 1st January 1956	£1,365 6 10
Transfer to Library Fund	10 17 6	Entrance Fees	10 17 6
Balance at 31st December 1956	1,332 7 10		
	£1,376 4 4		£1,376 4 4

LIBRARY FUND—Year ended 31st December 1956.

Purchases—			Balance at 1st January 1956	£69 9 11
Books	£39 8 5		Books Sold	61 12 6
Binding	2 13 0		Entrance Fees	10 17 6
		£42 1 5		
Balance at 31st December 1956		99 18 6		
		£141 19 11		£141 19 11

PUBLICATION FUND—Year ended 31st December 1956.

Deficit in Provision for 1954/55 issue of "Proceedings"		£56 16 2	Balance at 1st January 1956	£3 3 5
Printing and Posting the "Proceedings and Transactions", 1955 ...	£356 10 0		Sales of "Proceedings"	25 17 4
Blocks and Printing the Plates—			Sales of "A Guide to the Smaller British Lepidoptera"	3 4 3
Coloured	178 0 0		Interest—£300 0s 0d 3½% War Stock (Misses E. F. and L. M. Chapman)	10 10 0
Line and Half-tone	25 0 0		Donations	9 12 0
		559 10 0	Grant-in-Aid from the Royal Society	150 0 0
Balance at 31st December 1956		1 0 10	Grant from Income and Expenditure Account ...	415 0 0
		£617 7 0		£617 7 0

TENTH INTERNATIONAL CONGRESS OF ENTOMOLOGY.

Held at MONTREAL from 17th to 25th August 1956.

Report by the Society's Delegate, Dr. C. G. M. de Worms,
M.A., Ph.D., F.R.I.C., F.L.S., F.R.E.S.

It was indeed a happy choice that Montreal should have been selected as the venue of this Congress, since this was the first time it had been held outside Europe since that which took place in Ithaca, U.S.A., in 1928.

Your delegate was one of a party of forty entomologists drawn from many Institutions and Universities in the British Isles, which set sail from Liverpool on 10th August in the "Empress of France". After a very pleasant voyage the party reached Montreal on the afternoon of 17th August, but unfortunately owing to unavoidable delays, the ship docked too late to allow the main British delegation to attend the Inaugural Meeting addressed by the President, Dr. W. R. Thompson, F.R.S.

The Congress was held for the first three days in the extensive quarters of the McGill University, and the final part took place in the even larger Universitaire Française, situated on the slopes of Mount Royal. The programme was divided into fifteen Sections, comprising Systematics, Morphology and Anatomy, Physiology and Toxicology, Insect Behaviour, Ecology, Geographical Distribution, Genetics and Cytology, Palaeontology, Agricultural Entomology, Forest Entomology, Medical Entomology, Entomology of Stored Products, Biological Control, Apiculture, and, lastly, a section on the Arachnida. Altogether just on 750 papers were read by delegates from forty nations; as is customary, French, German, English and Spanish were the official languages. A feature of the Scientific programme was the many sessions devoted to one particular subject, and the number of Symposia which were included. One on the Entomology of the Arctic Regions was of especial interest. The majority of the papers were illustrated with slides or films, mostly in colour, and films of scientific subjects were shown during intervals each day, as well as others of a more popular character on some of the evenings.

A total of some 1500 individuals attended the Congress. These included delegates from the U.S.S.R., Bulgaria, Roumania and Czecho-Slovakia, with large contingents from France and Germany, though the largest proportion was made up from Canada and the U.S.A. The British delegation numbered about seventy. For this large assemblage a very good programme of entertainment was arranged as an adjunct to the main business of the Congress. During the first week-end about 500 members travelled overnight to Quebec, some 250 miles away, where they were entertained in the famous Château Frontenac Hotel by the Corporation of the City, and after touring the sights, were formally received and addressed by the Mayor and other City dignitaries. The whole party returned the same day by special train to Montreal. The whole of 21st August was devoted to an excursion to Ottawa, some 90 miles away, the 800 or so members who formed the party making the journey in a fleet of motor coaches. After lunch, they were shown several aspects of the scientific work carried out in the various Government departments. The party was also afforded the opportunity of viewing the collections of insects in the Science Service Building, which houses the National Collections of Canada. A visit was also paid to the Horticultural Centre. On 22nd August there was a buffet supper at the Chalet on Mount Royal, the Congress Banquet taking place in The Windsor Hotel the following evening. Each Section, so far as possible, organised a "smoking" supper and get-together on most nights during the Congress.

The Plenary Session of the Congress took place on 22nd August, with addresses from the President, from Dr. O. W. Richards of the United Kingdom, and from Dr. P. Maillet of France. Congress closed on the afternoon of 25th August with a final address by the President and the announcement that the Committee had accepted the invitation of the Austrian delegation to hold the next Congress in Vienna in 1960.

A large number of members availed themselves after the Congress of the opportunity to participate in a number of arranged excursions to various parts of the Dominion. These included a tour of the laboratories in Southern Ontario, which covered the whole of the following week and ended at Toronto, while others went to similar institutions in New Brunswick and to the Forest region near Sault St. Marie. Three collecting trips were also arranged to the Mont Tremblant region, to the Laurentide National Park and to Lake Erie; a more ambitious tour to Western Canada and the Pacific Coast covered three weeks. Many European delegates went on to Museums and scientific centres in the United States. For the efficiency and smooth running of the whole Congress programme general tribute was paid to the organisers and, in particular, to the Secretary, Mr. J. A. Downes, a former member of our Society.

DR. E. A. COCKAYNE.

IN MEMORIAM E. A. C.

One of the penalties of growing old is that one's treasured friendships become treasured memories. I have therefore approached the task of writing in memory of Edward Cockayne with mixed feelings. I met him first in Epping Forest, where as a young boy I was collecting butterflies. He showed me *Celama* (*Nola*) *confusalis* H.S. and its ab. *columbina* and we spent an afternoon together, not unprofitably. I could not know then that this was the beginning of an unbroken and unclouded friendship which would endure for more than half a century, nor that I was profiting from one of Edward Cockayne's most endearing virtues, his interest in, and kindness to, young people, a virtue which distinguished him throughout his life both in his practice of medicine and in entomology. It is perhaps typical of his influence that I still remember his rather shy approach to me, the excitement he revealed when I found my first *columbina* and his insistence that I should go to the next meeting of the City of London Society.

Edward Alfred Cockayne was born at Sheffield on 3rd October 1880, and was the son of Edward Shepherd Cockayne and of Mary Florence Cockayne, who later married Lord Haddo, now the second Marquess of Aberdeen. He was educated at Charterhouse and Balliol and later studied at St. Bartholmew's Hospital. He took a first class in Natural science in 1903, obtained the degree of D.M. in 1912 and became F.R.C.P. in 1916. He served in the Royal Navy during the 1914-1918 War, and I remember his telling me that during a day's collecting in Spain he distinguished two species of *Anaitis*. He did not then know that both occurred in this country because it happened that he had only encountered one of them.

From his school-days Cockayne was a keen entomologist, and his outstanding ability as a field naturalist was apparent at an early age. Though of slight build he appeared tireless and so long as anything of interest could be seen he would continue to observe and collect and, indeed, expect his friends to display a similar enthusiasm.

Cockayne began very early to communicate his observations to the magazines, and these observations always contributed to knowledge. No doubt, a complete list of his writings will be published—I cannot attempt it. Yet such a list would illustrate as well as anything that can be written the development of his interests and his knowledge. His knowledge was encyclopaedic and was founded on close acquaintance with British Lepidoptera both in the collection and in the field. He wished to know the life history and habits of every species, and his success in these studies resulted in the successful collection and breeding of numerous "rare" species, which he proved to be readily obtained when their habits were once understood. It is probably even now not generally known that there is included in the vast collection which he presented to the British Museum a long series of preserved larvae of almost every British species, all of which he preserved and mounted himself.

Cockayne was probably the first to breed *Poecilopsis* (*Nyssia*) *lapponaria* Boisd. (from wild larvae) though not, I think, the first to record it. He applied himself at once to a study of its life history. Year by year he reared little-known species in his flat in London, often journeying to the country for food-plants and having to bring up his larvae in tins or in small sleeves on cut stems supported in bottles. I do not think he ever failed to rear a larva of reasonable size under these conditions and his contributions to our knowledge of the life history of *Parascotia fuliginaria* L., *Lampropteryx otregiata* Metc., *Eupithecia intricata* Zett. s.sp. *arceuthata* Frey, and other rare species were based on such work. I only once knew him to decide that he could not rear a larva in his flat, and that was when he wished to rear *Catocala fraxini* L. But he saw the moths emerge in due course.

Cockayne was among the first entomologists to make a serious study of genetics, and at once saw the importance of the new branch of science in medicine. He was a pioneer in the study of human genetics and retained his interest in this subject long after he had retired from active practice. In entomology the study of genetics stimulated his interest in variation and he was keenly interested in the status of many forms of British moths. But in the years just before, and again after, the war of 1914-1918 his major interest was in abnormalities of development. He studied and published important papers on gynandromorphism in *Amorpha populi* Tutt, on intersexual forms of *Lycaena coridon* Poda and *Plebejus argus* L., and later on homoeosis, additional wings and other structural abnormalities. Probably his interest in genetics enabled him to bring original thought to bear on these and kindred topics and he was certainly the first to attribute a genetic basis to such abnormalities as peroneural forms. It has perhaps been given to few of us to have first-hand experience of his keen and close observation of insects in his care. One such experience remains in my memory. In June, 1940, I was breeding larvae of *Smerinthus* hyb. *hybridus* Steph., and as I knew Cockayne had never been able, from lack of facilities, to breed this insect himself, I sent him three larvae, two almost fully grown and one in the penultimate instar. When the last-mentioned larva changed its skin into the last instar Cockayne at once observed that it had developed some imaginal characters, and there followed an important paper on prothetely and its association with hybrids in *Proc. ent. Soc. Lond.*, **16**: 55.

Cockayne formed an immense collection of British Lepidoptera, particularly moths, and on his retirement from practice he settled at Tring and presented his collection to the Trustees of the British Museum, himself undertaking the immense task of amalgamating his own series with those of the late Lord Rothschild and Dr. H. B. D. Kettlewell. To this task he devoted the remainder of his life, and the result is a collection which has never been surpassed and which will remain for all time as his most enduring monument. His deep interest in this work is evidenced by his generous bequest to a body of Trustees of a substantial fund, the income from which will be applied to the improvement and extension of the collection and the acquisition of new forms. Following the death of H. J. Turner, he became editor of the *Entomologist's Record* and in its pages described many of the new forms of Lepidoptera which the arrangement of the collection had brought to light. This task he continued almost to the end, in spite of his poor health, and only last year he published jointly with the writer a review of the variation of *Cryphia muralis* Forst. with special reference to the Irish forms. (*Ent. Gaz.*, **7**: 63).

Cockayne was President of the London Natural History Society and twice of the South London Entomological and Natural History Society and the Royal Entomological Society of London. He was made O.B.E. for his services to entomology in 1954.

Those of us who were his contemporaries know well that we shall never look upon his like again. It is, indeed, remarkable that one so shy, modest and retiring should leave so great an impression on those who knew him, but he had the fortune to be endowed with great strength of character, coupled with absolute honesty of mind and the ability to express his thought in clear and exact language. He was incapable of temporising with truth, to the extent that he could be as critical of his own error, rare though this was, as of the errors of others. If he had a fault it was that he expected the same standards from others and could be intolerant if he did not find it, but this perhaps enhanced the value of his friendship to those who were fortunate enough to enjoy it.

His great knowledge was always available to others and he never found it too much trouble to give help to young entomologists and to encourage them in the pursuit of knowledge. For some years failing health, met with unshaken courage, prevented him from attending meetings in London, and a new generation of entomologists has appeared to many of whom Cockayne the man was unknown. To these he must have been very well known by his writings, but I have tried, for their benefit, to picture the man as I knew him. It is an almost impossible task, indeed it could only be perfectly discharged by his equal. His influence on entomology will be enduring, since such lives are not to be measured in years, and it may well be that there are many who will in the future profit by his life and work who could not understand what manner of man he was until his voice was silent and he had passed from among us. May his monument be in our memories.

H. B. W.

ABSTRACT OF PROCEEDINGS

INDOOR MEETINGS.

9th FEBRUARY 1956

The PRESIDENT, Lt.-Col. W. B. L. MANLEY, F.R.E.S., in the Chair.

The death of Mr. S. P. Doudney was announced.

Mr. Alfred John Stoner was declared elected a member.

EXHIBITS.

THE PRESIDENT—(1) An unusual variety of *Acleris hastiana* L., and (2) a male specimen of *Cosymbia puppillaria* Hb.

He read the following note: "I am showing this evening a specimen of the tortricid moth *Acleris hastiana* L. bred from a larva which was one of a few collected at Dungeness on 11th Sept. last. Although I have now bred approximately 19,000 of this species from various localities in England and Wales, this specimen is unlike anything I have seen before—it might almost be said that this species is as variable as the human face."

"I also have here a male specimen of *Cosymbia puppillaria* Hb. found on the morning of 22nd Aug. last in our trap, which is mid-way between Otford and Shoreham in the Darenth Valley some 8 miles south of Dartford in N.W. Kent. We are indebted to Mr. Fletcher of the British Museum (Nat. Hist.) and the Baron de Worms for the identification of this insect. The latter informs us that the first example of this species to be taken in Britain was one taken by the late Dr. K. G. Blair at his house in Freshwater, Isle of Wight, in 1946. A further specimen was taken by the late Mr. Archibald Russell at Swanage in 1947, and one more was taken at Torquay in 1951. Two further specimens were found in an old collection emanating from the Scilly Isles. Spuler gives Central and South Europe together with West Asia for this species. Seitz adds Switzerland, Madeira, South Tyrol, Armenia and Syria. *Cistus*, *Myrtus*, *Phillyrea* and *Arbutus* are given as food plants".

COMMUNICATIONS.

Mr. T. G. HOWARTH told the meeting that our Member Mr. A. J. Dewick had taken a female specimen of *Palpita unionalis* Hb. at mercury vapour light on 10.xi.55. It had been kept alive in a room at approximately 60° F. for nearly three months. He posed the question "was longevity a factor in migrants?"

Dr H. B. D. KETTLEWELL gave a talk on "Industrial Melanism in Lepidoptera" which he illustrated by lantern slides, a cinematograph film, photographs and a case of insects.

23rd FEBRUARY 1956.

The **President** in the Chair.

The death of Dr. H. King was announced.

Mr. George Hennah Mansell was declared elected a member.

EXHIBITS.

Mr. and Mrs. T. G. **Howarth**—Two nearly full-grown larvae of *Euplagia quadripunctaria* (Poda), the Jersey Tiger, from Dawish ova.

Mr. A. E. **Gardner**—The following species of imported Orthoptera: (1) *Neoblatella carcinus* Rehn & Hebard (Dict., Blattidae) taken in a fruit shop at Feltham, Middx., by Mr. E. W. Classey, September, 1955. This species is frequently imported with bananas from Dominica (Leeward Islands) *cf.* Bunting, W., 1955, *Ent. mon. Mag.*, **91**: 134. (2) *Gryllus bimaculatus* Deg. (Gryllidae) taken in Covent Garden, London, 1955.

Mr. T. J. **Honeybourne**—Apparatus for breeding Lepidoptera.

Mr. F. D. **Buck**—An undetermined specimen of the Australian genus *Adelium* (Col. Tenebrionidae) exhibiting teratology in the left anterior tibia.

Mr. F. T. **Vallins**—A "Jenny Heniver"—a manipulated and mummified skate or ray intended to represent a dragon or mermaid.

Dr. B. P. **Moore**—A case of Carabid beetles to illustrate methods of mounting Coleoptera.

COMMUNICATIONS.

Mr. S. **Wakely** reported recently taking the galls of *Aegeria flaviventris* Staud. (Lep. Sesiidae). Mr. T. G. **Howarth** commented on Mr. Vallins' exhibit and drew attention to a paper on the subject, "Jenny Henivers, Dragons and Basilisks in Old Natural History Books and in Modern Times" by Dr. E. W. Gudger (1934, *Sci. Monthly*, **38**: 511-523).

Coloured slides depicting mainly Continental collecting were shown by Mr. **Matthews**.

A discussion on "Methods" was opened by Dr. B. P. **Moore**, Mr. T. J. **Honeybourne** and Mr. **Dennis Leston**.

8th MARCH 1956.

The **President** in the Chair.

Mrs. J. O. I. Spoczynska was declared elected a member.

EXHIBITS.

Mr. J. O. T. **Howard**—A specimen of the moth *Euchromia lethe* F. taken alive at Newcastle-under-Lyme, Staffs. He read the following note: "The insect was imported, presumably in the pupal stage, in bananas from tropical West Africa. The genus belongs to the family Syntomidae, and Seitz (1926) describes seven species from Africa, all from the tropical zone. He mentions that many new species are being found in Malaya to add to the 27 described in his Indo-Australian volume (1913). The moths are all sun-lovers, and the African species particularly are notable for their brilliantly decorated bodies''.

Dr. C. G. M. de Worms—Two cases of Wainscots in support of his talk.

Mr. R. M. Mere—(1) *Ennomos autumnaria* Wernb. (Lep. Selidosemidae) from various broods which included a dusky form; and (2) two melanic specimens of *Arctia caja* L. (Lep. Arctiidae) of F3 generation, ex David Wright's Whitehall stock, with male antennae, female frenula and apparently female bodies.

COMMUNICATIONS.

Apocheima hispidaria F. (Lep. *Selidosemidae*) was reported to be on the wing. Dr. de Worms gave a talk on the ''Wainscots'' illustrated by coloured slides. A discussion followed. (See *Trans.*, p. 91).

22nd MARCH 1956.

The President in the Chair.

The death of Mr. J. Antony Thompson was announced.

EXHIBITS.

Dr. C. G. M. de Worms—A series of *Arctia caja* (L.) (Lep. Arctiidae) approaching the form *consolidata* Cockayne which had been bred from a wild female.

COMMUNICATIONS.

Mr. J. O. T. Howard gave the meeting news of Dr. G. V. Bull who had recently been very ill. Dr. Colin G. Butler gave a talk, ''An Introduction to the Honeybee's World'', which was illustrated by slides and a film, he also answered many questions arising out of his talk.

12th APRIL 1956.

B. P. Moore, B.Sc., D.Phil., F.R.E.S., Vice-President, in the Chair.

EXHIBITS.

Dr. B. P. Moore—A dwarf female of *Ptinus fur* (L.) (Col. Ptinidae) from Farnham, Surrey, together with a typical specimen for comparison. In commenting on his exhibit, Dr. Moore made special reference to the effect on specific characters of these small examples.

Dr. C. G. M. de Worms—Specimens of the following Lepidoptera which had occurred mainly at light: *Xylocampa areola* Esp., *Orthosia munda* Schiff., *O. incerta* Hufn., *Cerastis rubricosa* Schiff. and *Dasycampa rubiginea* Schiff. (Agrotidae), *Selenia bilunaria* Esp., *Biston strataria* Hufn., *Trichopteryx* (*Nothopteryx*) *carpinata* Bork. and *Lycia hirtaria* Clerck. (Geometridae).

Mr. S. Wakely—(1) Galls on sallow caused by the larvae of *Aegeria flaviventris* L. (Sesiidae) and *Laspeyresia servillana* Dup. (Eucosmidae) taken on the Oxshott field meeting on 7th April; (2) larvae of three species of moths taken at light at Byfleet, Surrey, in August last, *Parascotia fuliginaria* L. (Plusiidae), *Xanthorhoë quadrifasciata* Clerck and *Apeira syringaria* L. (Geometridae); (3) the larvae of the beetle *Anthrenocerus australis* Hope (Dermestidae), which occurred in a printing office in London some 20 years ago and which he had since been breeding continuously in a glass jar. Imagines of all species were also shown; (4) a photograph of an unusual old notice on a tree near Shanley Green, Surrey, warning trespassers.

Mr. R. M. **Mere**—Larvae of *Melitaea cinxia* L. (Lep. Nymphalidae) from the Isle of Wight.

Mr. T. G. **Howarth**—A selection of spring moths.

Mr. A. W. **Gould**—Examples of *Claviger testaceus* Preys (Col. Clavigeridae) from the nest of the yellow ant at High Halling, Kent, in March.

Mr. F. **Rumsey**—A series of *Lycia hirtaria* (Lep., Geometridae) both typical and melanic forms, inbred 29.iii.56 to 2.iv.56, from ova laid by an Essex female.

Mr. T. J. **Honeybourne**—The following hibernated larvae displayed in cages in the Society's library: *Aporia crataegi* L. and *Colias hyale* L. (Pieridae), *Euphydryas aurinia* Rott. (Nymphalidae), *Lycaena dispar* v. *rutilus* Werne (Lycaenidae) and *Panaxia dominula* L. (Arctiidae).

COMMUNICATIONS.

A query was raised concerning the plant on which the exhibited larvae of *M. cinxia* were taken, it being thought that *Plantago coronopus* L. was the most likely pabulum in the Isle of Wight. Mr. **Mere** said he could not be certain of the name of the Plantain in question but he was sure it was not *P. coronopus*.

Mr. R. **Eldon Ellison** stated that he had received a report from a reliable, non-entomological source, of *Vanessa atalanta* L. hibernating in some numbers with other Vanessids at Annan on the east side of Scotland.

Arising from a comment regarding insects of "other" orders in mercury vapour light traps, a number of instances of Coleoptera being seen at light were given, particularly the *Dytiscus* species.

A discussion took place on the feeding habits of *Typhaeus typhoeus* (L.) (Col. Scarabaeidae) since the severe toll taken of the rabbit by Myxomatosis. It was thought that deer and sheep dung was replacing rabbit dung in the ecology of this insect.

Subsequent to this discussion attention was drawn to the suggestion that Buzzards became sterile after eating rabbits affected by Myxomatosis. An expression of opinion was given that the reduction of numbers of the Buzzard in those areas where this disease was prevalent, was most likely due to the reluctance of the bird to mate in the districts where the population density of its food dropped too low.

A report of the Oxshott field meeting was given by the leader, Mr. T. R. **Eagles**.

26th APRIL 1956.

The PRESIDENT in the Chair.

The deaths were announced of Mr. Basil Snell and Mr. F. T. Gilliat.

EXHIBITS.

Mr. A. H. SPERRING—Melanic and dark forms of *Gonodontis bidentata* Clerck (Lep. Geometridae) bred from Lancashire melanic parents.

Mr. R. FAIRCLOUGH—(1) A melanic *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh. (Lep. Geometridae) taken at Leigh, Surrey, 10.iv.56; (2) Examples of *Telphusa aethiops* Westw. (Lep. Gelechiidae) from the Ashdown Forest, 11.iv.56.

Mr. and Mrs. T. G. HOWARTH—A teratological specimen of a *Narcissus* with the corona split, the two edges invaginated and forming an extra segment to the perianth.

COMMUNICATIONS.

Attention was drawn to the fact that *Telphusa aethiops* was usually taken on burnt ground on heaths, though the larvae fed on heather. The exhibitor confirmed that this was so in the case of the specimens shown. Dr. C. G. M. DE WORMS commented on the specimen of *Trichopteryx carpinata* saying it was an unusual specimen and unlike anything he could recall.

Mr. C. F. RIVERS read a paper "Advances in Insect Virus Research", illustrated by lantern slides which gave rise to a lively discussion. (See *Trans.*, p. 101).

10th MAY 1956.

The PRESIDENT in the Chair.

EXHIBITS.

Mr. W. S. WAKELY—(1) Specimens of the rare moth *Heterographis oblitella* Zell (Pyralidae) taken on the Benfleet field meeting, 5.v.56; and (2) larvae of *Nemotois fasciella* F. (Lep. Adelidae), from Stanford-le-Hope, 28.iv.56, together with imagines.

Mr. W. G. MINNION and Mr. B. S. GOODBAN — Living examples of *Xanthorhoë biriviata* Borkh. (Lep. Geometridae) bred from larvae taken in September from the original locality.

Mr. B. GOATER—Lepidoptera; (1) a series of a dark local form of *Alcis* (*Cleora*) *repandata* L. from Mill Hill, Middx., and of *Menophra* (*Hemerophila*) *abruptaria* Thunb. ab. *fuscata* Tutt, which occurs with the typical form in the same locality. (2) A selection of melanic and darker than typical specimens of Lepidoptera taken at Mill Hill during 1955 and 1956. The majority were species which normally rest by day in exposed situations, and whose darker coloration could be expected to have survival value in an industrial area.

Dr. J. B. **McNulty**—A case containing 21 species of Nigerian Longicorne beetles.

Dr. B. P. **Moore**—A pupa of the Alder fly, *Sialis lutaria* L. (Megaloptera) reared from a larva taken from Woolmer Pond, Hants, 6.v.56.

Mr. F. T. **Vallins**—Aberrations of *Lycaena phlaeas* L. and *Aricia agestis* Schiff. (Lep. Lycaenidae) from the collection of the late Dr. Harold King which had recently been presented to the Society.

COMMUNICATIONS.

The **Secretary** announced that Mr. M. C. Jacoby had presented to the Society a volume of The Fauna of British India, Chrysomelidae, Vol. 1. Dr. **de Worms** reported the season well advanced in the South but more backward in Scotland.

Dr. **Elwood C. Zimmerman** showed a magnificent series of colour transparencies which he called "Amazonian Jungle Insects of Peru".

24th MAY 1956.

The **President** in the Chair.

Messrs. Bruce Carlyle James, Colin Keith-Johnston and David Victor Alford were declared elected to membership.

EXHIBITS.

Mr. F. D. **Buck**—Coleoptera taken on the Cosford Mill field meeting, 13.v.56. (1) *Dianous coeruleus* Gyll. (Staphylinidae), and (2) seven different species of *Ceuthorhynchus* (Curculionidae).

Mr. A. W. **Gould**—Beetles taken at Buxted, Sussex, 20.v.56; *Caenorhinus aeneovirens* (Marsh.) and *Rhynchites cupreus* (L.) Curculionidae), also *Stenostola ferrea* (Schrank) (Cerambycidae). He also showed *Clytra quadripunctata* (L.) (Chrysomelidae) taken flying over the nest of *Formica rufa* L. (Hym. Formicidae) at Brentwood, Essex, 21.v.56.

Dr. B. P. **Moore**—A selection of recent captures in Coleoptera from the Thursley district of Surrey.

COMMUNICATIONS.

Mr. C. N. **Hawkins** again commented on the pansy which had produced both yellow and pale blue flowers (see report of meeting, 11th May 1955), saying the cuttings from the plant had also produced the same results. A member reporting on the Lepidoptera in Buckinghamshire said that *Strymonidia pruni* L. (Lycaenidae) was quite common but that *Nymphalis polychloros* L. and *Apatura iris* L. (Nymphalidae) had as yet not been seen.

Reports of the Benfleet, Cosford Mill and Buxted field meetings were given.

Dr. T. R. E. **Southwood** read a paper on "The Zoo-geography of the British Hemiptera" which he illustrated by the lantern. An interesting discussion followed. (See *Trans.*, p 111.)

14th JUNE 1956.

The PRESIDENT in the Chair.

Mr W. J. Akester was declared elected a member.

EXHIBITS.

Mr. F. D. BUCK—(1) Coleoptera from the New Forest, 26.v.56; *Dromius angustus* Brullé (Carabidae), *Triplax aenea* (Schall.) (Erotylidae), *Pediacus dermestoides* (F.) (Cucujidae), *Elater cinnabarinus* Esch. (Elateridae) and *Strangalia nigra* (L.) (Cerambycidae). (2) Hymenoptera also from the New Forest, 26.v.56: *Formica rufa* L. with a smaller inquiline ant ?*Leptothorax nylanderi* (Foers.) (Formicidae). (3) Coleoptera from Lymington Salterns, Hants, 27.v.56: *Bembidion ephippium* (Marsh.) (Carabidae), *Anthicus salinus* Crotch (Anthicidae), *Cassida vittata* de Vill (Chrysomelidae), *Sibinia arenariae* Steph. and *Gronops lunatus* (E.) (Curculionidae), the three last named being taken at the roots of *Spergularia salina* J. & C. Presl.

Mr. A. E. GARDNER—The following live specimens of Dictyoptera bred by Mr. W. Bunting, F.R.E.S.:—*Blaberus discoidalis* Serv. and *Eurycotis floreana* (Walk.) (Blattidae). Lepidoptera: Continental examples of the following moths purchased by consent of the Council for inclusion in the Society's collection:—*Catocala electa* View. (Plusiidae), *Epicnaptera ilicifolia* L. (Lasiocampidae), *Notodonta tritophus* Schiff. (*phoebe* Sieb.), *N. torva* Hb. and *Gluphisia crenata* Esp. (Notodontidae).

Mr. T. J. HONEYBOURNE—A male and a female example of *Graellsia isabellae* Graels from Spain with larvae and cocoons.

Mr. C. N. HAWKINS—A short series of *Euphyia cuculata* Hufn., 4 males and 1 female, bred May/June 1956, from larvae found on *Galium verum* L. on Mitcham Common, Surrey, in August 1955.

Mr. ROBIN MERE—A larva of *Entephria flavicintata* Hb. (Lep. Geometridae) feeding on saxifrage. The larva, with others, was found near Durness, Sutherland. The insect appears to be single brooded there, but double brooded in some of the more southern localities.

COMMUNICATIONS.

Phyllopertha horticola (L.) (Col. Scarabaeidae) was reported swarming on the Surrey Downs, doing considerable damage.

THE PRESIDENT commented on the occurrence of *Plusia gamma* L. (Lep. Plusiidae) in N. Kent. He said the species was absent from his district until the middle of the previous week when it suddenly became very common. Approximately 100 examples occurred in his trap in a single evening at its peak, the numbers then falling away again. An ensuing discussion produced the information that a similar occurrence had been observed in Surrey on 11.vi.56 by two members. One of these stated that nearly all his *P. gamma* were the small pale grey form and that *Agrotis exclamationis* L. (Agrotidae) was also prevalent. In Hertfordshire, too, *P. gamma* had been noted in similar circumstances, but in this case the commonest species was *Diarsia rubi* View. However, two members reported that at Eastbourne there were not many *P. gamma*, here the commonest moth was *Agrotis exclamationis* L.

Reports of the following field meetings were given:—Chobham by Mr. S. Wakely, Horsley by Mr. T. R. Eagles and Bookham by Mr. F. D. Buck.

28th JUNE 1956.

The President in the Chair.

EXHIBITS.

Mr. W. E. Minnion—A short series of *Xanthorhoë biriviata* Bork. (Lep. Geometridae) spring form showing some variation. The exhibited specimens were taken in the original southern England locality, or bred from larvae from the same source.

Mr. F. D. Buck—Two species of Coleoptera (Curculionidae) taken on Watercress (*Nasturtium officinale* R. Br.) in the Watercress beds at Leatherhead, Surrey, on 9.vi.56. (1) *Drupenatus nasturtii* (Germ.) and (2) *Amalorrhynchus melanarius* (Steph.).

Dr. B. P. Moore—Two living female Embiopterons (Web Spinners) from northern Spain. He said they live in silken tubes under stones, etc.

COMMUNICATIONS.

Reports were given of the Ham Street and Horsell field meetings.

The Rev. C. E. Tottenham gave a talk on the "Unsolved Problems of the Beetle World", which was followed by a brief discussion.

12th JULY 1956.

The President in the Chair.

EXHIBITS.

Mr. H. G. Tunstall—A specimen of the Musk Orchid (*Herminium monorchis* (L.) R. Br.) in bloom after three years in a flower pot.

Mr. C. N. Hawkins—Lepidoptera. *Mimas tiliae* L. (Sphingidae), three contrasting forms. (1) A greyish-olive coloured male with complete central band on forewings, bred 12.v.44 from wild Ashtead, Surrey, pupa. (2) A green and red female with the central band broken into an irregularly shaped spot on the disc of the forewing and a small triangular spot on the inner margin, no left antenna, Wimbledon, bred 1.vi.55 from a larva rescued from a blackbird. The pupa had no left antenna, presumably as a result of injury to the larva. (3) A yellow female with slight tinge of green on thorax and head, Merton, Surrey, 18.vi.56; found at rest on elm, ? ab. *lutescens* Tutt, or near that form. Coleoptera. *Lucanus cervus* L. (Scarabaeidae) male with well developed head and jaws, Wimbledon, 23.vi.56. Flowering Plants: a twig of *Euonomus* *japonica* L. with a double leaf near tip; and a flower stem of *Iris pseudacorus* L. showing a double bend similar to those exhibited in 1955 (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 7) and from the same plant in his garden at Wimbledon.

Mr. P. N. Crow—Two larvae of *Apatele alni* L. (Lep. Agrotidae) in the stage when they resemble bird droppings, from ova deposited by female taken in Devon.

Dr. J. Newton—(1) A gall in part of a twig from a tree (? apple) cut open to show the workings of the beetles *Anaglyptus mysticus* (L.) (Cerambycidae) and *Anobium* sp. (Anobiidae) together with the insects. (2) A series of *Strangalia maculata* (Poda) (Col. Cerambycidae) showing variation in elytral markings, taken on Epsom Common, Surrey, 7.viii.56.

Mr. T. J. Honeybourne—The larvae of three Japanese moths, *Caligula japonica* Butler, *C. boisduvalii* s.sp. *jonasii* Butler and *Rhodinia fugax* Butler.

Mr. A. S. Wheeler—Four gynandromorph examples of *Laothoë populi* L. (Lep. Sphingidae) bred during the present season and the three preceding seasons. The original stock, a Tadworth female and a male from a bombed site in the City of London, were bred from larvae taken during 1951. The example bred in 1955 has only one foreleg, this being characteristic of many bred that year.

Dr. B. P. Moore—A full grown larva of the Carabid beetle, *Chlaenius vestitus* (Payk.).

COMMUNICATIONS.

An example of *Acherontia atropos* L. was reported to have flown into a lighted room at North Chapel, Sussex, at 11.15 p.m. recently and was thought to be probably a male.

Celerio galii Schiff., *C. livornica* Esp. and *Leucania albipuncta* Schiff. were reported from Torquay, Devon.

An inquiry whether *Cucullia absinthii* L. had been taken in the Metropolitan area produced the information that it had occurred at Regent's Park, Feltham, Arkley and Otford among other places.

Mr. M. W. F. Tweedie gave a talk on "Butterflies of Malaya", which was illustrated by lantern slides.

26th JULY 1956.

The President in the Chair.

EXHIBITS.

Mr. L. W. Siggs—Lepidoptera taken recently at Orpington, Kent: (1) *Mimas tiliae* L. (Sphingidae), a dark green form; (2) *Lophopteryx cucullina* Schiff. (Notodontidae); (3) *Apatele alni* L. (Agrotidae), a dark form; and (4) *Chloroclystis rectangulata* L. (Geometridae).

Mr. S. Wakely—Coleoptera taken at Studland, Dorset, earlier in July. (1) *Carabus nitens* L. (Carabidae), a dark form showing none of the usual green metallic coloration, and for comparison a typical example. (2) *Odontaeus armigera* (Scop.) (Scarabaeidae) taken at mercury vapour light. (3) *Euchlora dubia* (Scop.) v. *aenea* (Deg.) (Scarabaeidae) taken on the sandhills. (4) *Cryptocephalus biguttatus* (Scop.) (Chrysomelidae) taken on heather.

Mr. B. Goater—A cocoon of *Nola cucullatella* L. (Nolidae) on a twig of apple. It was found after the moth had emerged in a breeding cage in which apple was being used as foodplant for the larvae of *Ennomos autumnaria* Wernb. (Geometridae).

Mr. T. R. Eagles—(1) Fruit of the Mandrake, *Mandragora officinarum* L. (Solanaceae). (2) Larvae of *Apatele aceris* L. (Lep. Agrotidae) from Enfield, Middx. (3) Larvae of *Eulype hastata* L. (Lep., Hydriomenidae) from Ham Street, Kent.

Mr. C. N. Hawkins—A bloom of a garden pansy showing an abnormality apparently analogous to a somatic mosaic in insects. This pansy is pale yellow with a bluish edging to the petals, also this particular bloom has a sharply defined streak of dark blue running up one of the petals. The plant is a cutting from part of a plant which last year (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 5) the exhibitor reported was producing two colours of bloom. Another cutting from the same plant has this year again produced two colours of bloom, one a bright yellow, and the other a pale yellow with bluish edging to the petals (similar to that exhibited). At a recent meeting (24th May, p. 6) the exhibitor reported that the last mentioned plant had produced a bright yellow bloom with one upper petal half yellow and half blue with a sharp dividing line between the two colours. The plant which has produced the present exhibit has at the moment two other blooms similar to the exhibit but differing in the arrangement of the colours; in one case the whole of one side of one petal is dark blue, sharply separated from the yellow, and in the other the blue patch is nearer the outer middle part of the petal and is not nearly so sharply defined.

Mr. P. N. Crow—A final instar larva of *Apatele alni* L. (Lep. Agrotidae) from the same stock as exhibited at the previous meeting from which example the present larva differs in being the banded form.

COMMUNICATIONS.

Subsequent to the inquiry regarding *Cucullia absinthii* L. (Lep. Agrotidae) at the last meeting the species was reported from Orpington, Kent.

Dicycla oo L. (Lep. Agrotidae) was reported from Chiddingfold, Surrey, on the night of 18-19.vii.56 and *Lithosia quadra* L. (Lep. Arctiidae) four nights previously. *D. oo* L. was also reported from Woking, Surrey.

Mr. W. H. Spreadbury gave a talk on "Spiders" which he illustrated by lantern slides.

Reports were given of the Balcombe and Box Hill field meetings.

9th AUGUST 1956.

B. P. Moore, B.Sc., D.Phil., F.R.E.S., Vice-President, in the Chair.

EXHIBITS.

Dr. B. P. Moore—A specimen of the curious Hemipteron *Phyllomorpha laciniata* Vill. (Coreidae) and its foodplant *Paronychia* Juss. sp., from northern Spain.

Mr. T. G. Howarth—Two living males of the butterfly *Virachola livia* Klug. (Rhopalocera, Lycaenidae) bred by Mr. B. J. Southgate who found the nearly full-grown larvae feeding in the seed-pods of *Acacia farnesiana* Willd., sent from Israel in July. Attention was drawn to the characteristic resting attitude with the anal lobes of the hindwings bent outwards at right angles away from the body and the very slow vertical movement of the hindwings.

Mr. W. H. Spreadbury—Two imagines, an empty pupa and a typical gall of *Aegeria flaviventris* Staud. (Lep. Sesiidae) from Oxshott, Surrey.

Mr. S. Wakely—Specimens of *Euchlora dubia* (Scop.) v. *aenea* (Deg.) (Col. Scarabaeidae) from Chilworth, Surrey, 4.viii.56.

COMMUNICATIONS.

Dr. C. G. M. de Worms presented the Society with a copy of his paper Moths of London and its Surroundings, *Proc. Lond. Nat. Hist. Soc.* Pt. III. Dr. de Worms, who is representing this Society at the forthcoming 10th International Entomological Congress at Montreal, received the best wishes from all present for a successful trip.

A report of the Chiddingfold field meeting was given by Mr. R. M. Mere, and a report of the Chilworth field meeting was given by Mr. S. Wakely—further information regarding the latter meeting being given by Mr. R. W. J. Uffen.

23rd AUGUST 1956.

The President in the Chair.

EXHIBITS.

Mr. L. T. Ford—The following Lepidoptera: (1) three examples of *Lozotaeniodes formosana* Fröl. (Tortricidae) bred from ova. (2) Three examples of *Cnephasia chrysanthemana* Dup. (Tortricidae). (3) One *Austrotortrix postvittana* Walk. (Tortricidae) taken at Falmouth.

Mr. R. Eldon Ellison—Lepidoptera showing melanic and other variations, comprising the following species: *Alcis repandata* L., *Ortholitha mucronata* Scop. (Geometridae) and *Spilosoma lubricipeda* L. (*menthastri* Esp.) (Arctiidae). With the exception of one *A. repandata* from S. Wales the exhibited specimens were all from Ireland.

Mr. T. R. Eagles—(1) A specimen of *Rhagonycha fulva* (Scop.) (Col. Cantharidae) from Bayford, Herts., to which were cemented pollinia of the orchid *Epipactis helleborine* (L.) Crantz. He explained that a pollinium is a pollen mass composed of thousands of pollen grains. (2) The fungus *Marasmius rotula* (Scop.) Fr. also from Bayford.

Mr. R. W. J. Uffen—(1) Larvae of *Coleophora lineola* (Haw.) (Lep. Coleophoridae) from Bookham Common, Surrey. (2) An example of *Gracillaria semifascia* Haw. (Lep. Gracillariidae) bred from leaf cones on *Acer campestre* L. and living examples of the Cosmopterygid moth *Mompha subbistrigella* Haw. bred from *Epilobium montanum* L. both from Box Hill, Surrey, 22.vii.56.

Dr. B. P. Moore—An example of one of the largest of the European Carabidae (Col.), *Procerus scabrosus* Ol.

Mr. A. E. Gardner—The following Coleoptera: (1) *Hylotrupes bajulus* (L.) (Cerambycidae) taken at Hersham, Surrey, 6.viii.56 and (2) from Box Hill, Surrey, 22.vii.56. *Licinus depressus* (Payk.) (Carabidae) and *Chrysolina violacea* (Müll.) (Chrysomelidae).

Mr. C. N. Hawkins—*Periplaneta americana* (L.) (Dict. Blattidae) found dead by a Wimbledon greengrocer in a case of grapes from Egypt.

Mr. T. G. Howarth—Two sprigs of Michaelmas daisy covered with eggs. The first instar larvae were determined as *Triphaena pronuba* L. (Lep. Agrotidae). These Mr. Howarth said possessed long setae and aborted hind legs, which caused the larvae to walk like Geometers.

COMMUNICATIONS.

A letter was read by the Secretary from Dr. C. G. M. de Worms, who is representing the Society at the 10th International Entomological Congress in Montreal, Canada.

A worn specimen of *Cosymbia puppillaria* Hb. (Lep. Geometridae) was reported from a light trap.

Reports of field meetings at Eashing Moors and Addington were given by Dr. B. P. Moore and Mr. E. E. J. Trundell respectively.

Mr. H. C. Huggins gave a colourful talk which he called "A Naturalist in the Burren". (See *Trans.*, p. 137.)

13th SEPTEMBER 1956.

The President in the Chair.

EXHIBITS.

Dr. C. G. M. de Worms—The chrysalis of *Danaus plexippus* Lin. and *Basilarchia archippus* Cramer from Canada.

Mr. T. R. Eagles—A larva of *Drilus flavescens* (Geof.) (Col. Drilidae) and the snails on which it was being fed, the insect was taken at Shoreham, Kent, 26.viii.56.

Mr. S. Wakely—(1) Seven examples of the beetle *Bolitophagus reticulatus* (L.) (Tenebrionidae) which Dr. D. A. B. Macnicol had taken in fungus (*Fomes*) at Rannoch, Scotland. (2) Examples of *Cicindela sylvatica* L. (Cicindelidae) and *Lilioceris lilii* (Scop.) (Chrysomelidae) which showed how their bright colours might be preserved by killing the specimens in "Thawpit".

Mr P. N. Crow—Two *Mythimna turca* (L.) (Lep. Agrotidae), larvae feeding on Cock's-foot Grass (*Dactylis glomerata* L.) bred from ova laid by a feral female taken in Herts, July 1956.

Mr. F. D. **Buck**—A short series of *Oxyporus rufus* (L.) (Col. Staphylinidae) taken from an Agaric fungus at Swainsthorpe, Norfolk, 11.viii.56.

Mr. A. E. **Gardner**—Two species of Carabid Coleoptera from the Norfolk coast during September 1956; *Nebria livida* (L.) v. *lateralis* (F.) and *Bembidion stephensi* Crotch.

COMMUNICATIONS.

The **Secretary** read a letter from Mr. R. M. **Mere** in which he recorded the following Lepidoptera within 15 miles of Chiddingfold, Surrey:—*Acherontia atropos* L. (Sphingidae) 4 examples; *Herse convolvuli* L. (Sphingidae) 4 examples; *Palpita unionalis* Hb. (Pyralidae) 3 examples; *Leucania albipuncta* Schiff. (Agrotidae) 1 example.

Acherontia atropos was reported from Dungeness, Kent, Wallington and Weybridge, Surrey and Arkley, Herts.

Mr. **Gardner** commenting on Mr. Wakely's exhibit said that great care should be exercised in using "Thawpit" as a killing agent for Orthoptera because in some cases it affects the colours.

Mr. D. H. **Walker** in a letter recorded *Coenonympha tullia* Müll. v. *scotica* Stgr. from Thurso, N. Scotland, 10.vii.56.

A hedgehog was noted to have been active during daytime—it was suggested that this may be due to ill health, in particular to an infestation of ticks.

Dr. B. J. **MacNulty** gave a talk on "Lepidoptera of Nigeria".

SPECIAL MEETING.

27th SEPTEMBER 1956.

The **President** in the Chair.

From the Chair the **President** formally moved, in the name of the Council, the following motion amending Bye-Law 12(a):—

> "That for 'Members under 21 years of age at the time their subscriptions fall due pay £1 1s 0d for Ordinary Membership and 12s 6d for Country Membership' substitute 'Members under 21 years of age at the time their subscriptions fall due pay 10s 0d for Ordinary or Country Membership'."

Following a debate during which a reference back was defeated the Council's motion to amend Bye-Law 12(a) was carried by 15 votes in favour to 4 against.

The President then formally moved in the name of the Council the following motion:—

> "That in the case of new members the reduced rates of Annual Subscription shall be effective from 1st October 1956, but in the case of existing members they shall not take effect until 1st January 1957."

The motion was carried *nem. com.*

27th SEPTEMBER 1956.

The President in the Chair.

EXHIBITS.

Mr. S. Wakely—(1) The following lepidopterous larvae: *Eupithecia pimpinellata* Hb. taken at the Betchworth field meeting on *Pimpinella saxifraga* L. (Umbelliferae), *Laspreyresia grossana* Haw. (Eucosmidae) from beech mast and *Coleophora therinella* Tengst (Coleophoridae) on *Cirsium arvense* (L.) Scop. (Compositae), the last two from Mickleham, 22.ix.56. (2) The stem of a prickly plant found growing on a rubbish tip at Pitsea, Essex, and later identified as the Russian thistle (*Salsola pestifer* A. Nels.).

Mr. T. R. Eagles—(1) The fruit of *Sorbus torminalis* (L.) Crantz (Rosaceae) from Bayford, Herts. (2) The beetle *Lycoperdina bovistae* F. (Endomychidae) found in a puff ball at Mickleham, Surrey, 22.ix.56. (3) The fruit of a species of Celastrus, a cultivated climbing shrub with fruit similar to that of the British wild shrub *Euonymus europaeus* L.; both belong to the order Celastraceae. This exhibit was also taken at Mickleham, 22.ix.56.

Mr. E. E. J. Trundell—An example of *Palpita unionalis* Hb. (Lep. Pyralidae) taken at light at Woking, Surrey.

Mr. C. N. Hawkins—Coleoptera taken at the Mickleham field meeting, 22.ix.56: *Lycoperdina bovistae* F. (Endomychidae), *Pocadius ferrugineus* (F.) (Nitidulidae) both from puff ball fungus; and *Psylliodes dulcamarae* (Koch.) (Chrysomelidae) taken on *Solanum dulcamara* L. (Solanaceae) at the foot of Box Hill.

Mr. F. Rumsey—Set examples of *Euxoa nigricans* (Lep. Agrotidae) from Banstead, Surrey, and *E. tritici* L. from Byfleet, Surrey.

Mr. R. M. Payne—*Chorthippus albomarginatus* (Deg.) (Orth. Acrididae) taken at Leyton Flats, E.11, an uncommon grasshopper found mainly by the sea but occurring in a few isolated localities within the London area; also *C. parallelus* (Zett.) for comparison.

COMMUNICATIONS.

Referring to Mr. Trundell's exhibit, Mr. R. M. Mere mentioned the occurrence of three more *Palpita unionalis* Hb.

Dr. C. G. M. de Worms gave news of Dr. G. V. Bull, whom he had recently visited, and also remarked upon the season.

Hippotion celerio L. (Lep. Sphingidae) was reported from N. Kent and Devon and the larvae of *Hydrillula palustris* Hb. (Lep. Agrotidae) from Woodwalton Fen, Hunts.

11th OCTOBER 1956.

The President in the Chair.

The following new members were elected:—Dr. T. C. Donovan, Messrs. C. I. Carter, S. F. Imber, F. G. Smith, P. H. Langton and W. J. Higgins.

EXHIBITS.

Mr. S. Wakely—The following lepidopterous larvae: (1) *Ethmia decemguttella* Hb. feeding on Gromwell (*Lithospermum* sp.) taken on the Druids Grove field meeting. (2) *Eupithecia millefoliata* Roes. (Geometridae) and *Phalonia dipoltella* Hb. (Phaloniidae) taken on the Pevensey field meeting.

Mr. R. Eldon Ellison—Aberrations of Lepidoptera, *Arctia caja* L. and *A. villica* L. (Arctiidae) and *Cerapteryx graminis* L. (Agrotidae).

Mr. P. N. Crow—Two larvae of *Amathes stigmatica* Hb. (Lep. Agrotidae) feeding on dock and bred from ova obtained from a wild female; also two larvae of *Plusia chryson* Esp. (Lep. Plusiidae) feeding on Hemp Agrimony (*Eupatorium cannabinum* L.), taken in Berks.

Mr. T. G. Howarth—A living nymph of *Gryllus campestris* L. (Orth. Gryllidae) from La Roche Bernard, Morbihan, W. France.

COMMUNICATIONS.

Two records of *Acherontia atropos* L. (Lep. Sphingidae) were reported from the Isle of Canna and further examples from the Zoological Gardens, Regents Park and the Barbican in the City of London. The President commented that most of the *A. atropos* seemed to have been taken between 9th and 15th September.

Palpita unionalis Hb. (Lep. Pyralidae) was reported from Hants., Weybridge (10.ix.56) and Woking (17.ix.56) in Surrey; Mill Hill, Ruislip and Totteridge in Middlesex: whilst Mr. Eldon Ellison said he had taken 12 examples near Eastbourne, Sussex, the majority being taken during 6 out of 8 nights—22nd, 23rd, 24th, 25th, 28th, 29th September; the two intervening nights were cold and windy.

Reports were given of the following field meetings:—Betchworth, Pevensey and Druids Grove.

Mr. Spreadbury and others commented on the Exhibition of fungi which had been laid out in the Library.

27th OCTOBER 1956.

THE ANNUAL EXHIBITION—RECORD OF EXHIBITS

Mr. D. Alford—(1) *Agrotis puta* Hb., a somatic mosaic taken at mercury vapour light, Ruislip, Middx., 16.v.56, (Plate III, fig. 9). (2) *Xanthorhoë fluctuata* L., an extreme obsolete variety taken at mercury vapour light, Ruislip, Middx., 3.x.56.

Mr. A. H. G. Alston—Kodacrome slides of plants and insects taken when collecting in Indonesia for the British Museum. The slides showed plants and vegetation in Java, Borneo, Sumatra, Celebes and the Moluccas and included a Pitcher plant (*Nepenthes*) growing on lava on

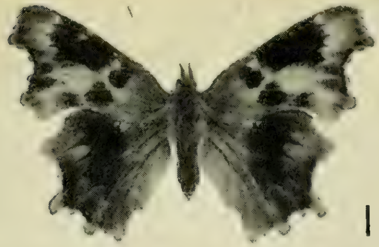
Minahassa. The pitchers, besides digesting insects, contain a specialist fauna which has adapted itself to the environment.

Mr. G. J. Ashby on behalf of the Zoological Society of London—The following living species: *Acrida turrita* (L.), Long headed grasshopper from N. Africa; *Orxines macklotti* (Sauss.), stick insect from Java; *Latrodectus mactans* F., Black Widow spider from U.S.A.; *Buthus occitanus* Amor, desert scorpion from N. Africa; *Sphodromantis centralis* Rehn., Praying Mantis from Gold Coast; *Blaberus cranifer* (Burm.), giant cockroach from S. America; *Diplopoda* sp., giant millipedes from Africa; *Polyspilota aeroginosa* (Goeze), mantid from Cameroons; *Avicularia avicularia* L., bird eating spider from British Guiana, together with young examples hatched September 1955; *Brachypelma vagans* Auss., bird eating spider from W. Indies; *Tapesia spumans* (Thunb.), Foaming Grasshopper from Rhodesia; *Anacridium aegyptum* L., Egyptian locust from Italy; *Cenobita rugosa* M. Edw., hermit crabs from Africa; *Androctonus australis* (L.), Fat Tailed Scorpion from N. Africa; *Pandinus imperator* Thorell, Imperial Scorpion from Nigeria; *Phyllium pulchrifolium* Serv., leaf insect from Ceylon; *Enyaliopsis* sp., Spiny Grasshopper from Cameroons; *Eleutherodactylus martinicensis* (Tschudt.), Madiana tree frog from W. Indies; *Schistometopum thomense* (Bocage), Yellow Caecilian from St. Thome, Gulf of Guinea; *Brookesia platiceps* (Gunther), Short Tailed Chameleon from Nyasaland; *Gastrotheca marsupiatum* (Duméril & Bribon), Marsupial frog from Uruguay; *Stenodactylus petri* (Anderson), Petrie's gecko from N. Africa; *Hyperolius viridiflavus* (Duméril & Bribon), tree from E. Africa.

Mr. C. F. Astbury—*Cucullia absinthii* L., bred from larvae taken at Woodrow, N. Worcs., during 1955, emerged 26.vi/6.vii.56; *Calophasia lunula* Hufn., bred from larvae taken at Hastings, Sussex, during 1955, emerged 7/17.vi.56; *Lasiocampa trifolii* Schiff., a series of 17 males assembled at Dungeness, Kent, on the evenings of 7 and 8.ix.56 by a female (shown), bred from a larva taken from the same area in June; *Argynnis euphrosyne* L., a short series from the Wyre Forest, Worcs., showing considerable variation; *Polygonia c-album* L., a variety taken at Tarr Steps, Somerset, 22.vii.56, (Plate II, fig. 1); *Callophrys rubi* L., a specimen with pale areas on both sides of hindwings, taken at Whitchurch, Oxon., 10.v.49; *Palpita unionalis* Hb., three examples taken in a mercury vapour trap at Hastings, Sussex, 10.ix.56 and 25.ix.56.

ANNUAL EXHIBITION, 27th October 1956.

1. Polygonia c-album L. var. (C. F. Astbury). 2. Amathes c-nigrum L. ab. (R. M. Mere). 3. Plusia acuta Walk. (Air-Marshal Sir Robert Saundby). 4. Biston betularia ab. nov. (Dr. H. B. D. Kettlewell). 5. Calocalpe undulata L. ab. (J. L. Messenger). 6. Epirrhoë tristata L. ab. (Commdr. G. W. Harper). 7. Cosymbia linearia Hb. ab. (R. M. Mere). 8. Citria lutea Stroem. teratological specimen (R. Eldon Ellison).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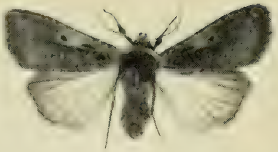
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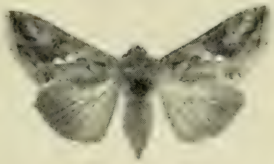
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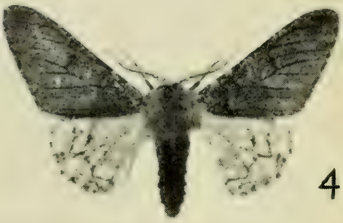
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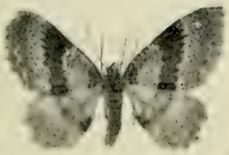
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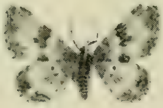
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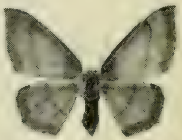
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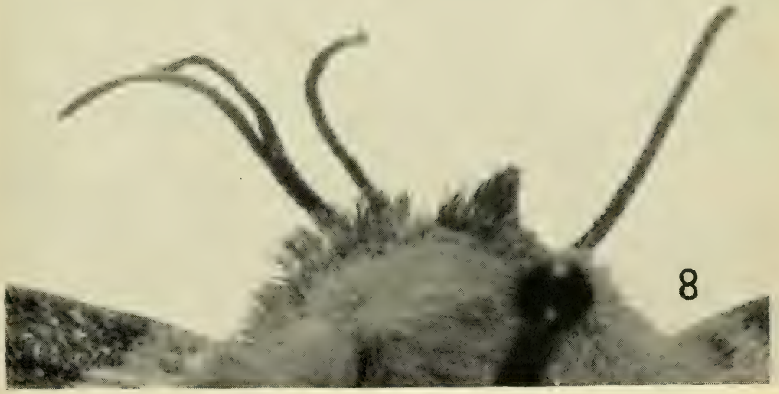
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[Photographs by H. W. T. Tams and the British Museum (Nat. Hist.)

Mr. K. E. J. Bailey—British Lepidoptera as follows: (1) *Eumenis semele* L., a male taken near Lewknor, Oxon., 7.viii.56; this is one of the few recorded examples from the area. (2) *Maniola tithonus* L., a male taken in Surrey, 28.vii.56; the brown areas and the ocellated spot are buff, the fulvous areas are normal. Also two female ab. *excessa* Leeds, N. Berks., 6.viii.56; a female similar to the ab. *lanceolata* Shipp. of *Aphantopus hyperantus* L., N. Berks., 6.viii.56; and a female with fulvous area on posterior wings greatly reduced, N. Berks., 7.viii.56. (3) *M. jurtina* L., a male and a female bleached (pathological), Oxford, 2/7.viii.56; two females approaching ab. *antialba* Leeds, E. Oxon., 2.viii.56; and a female underside ab. *excessa* Leeds, Chilterns, Bucks., 10.viii.56. (4) *Coenonympha pamphilus* L., a male lacking anterior wing apical spots (upperside only), Chilterns, Bucks., 15.viii.56; also a female ab. *bipupillata* Cosmovici, Glouces., 23.vi.56. (5) *Argynnis euphrosyne* L., a male with bleached area on right posterior wing; a fine male melanic aberration (anterior wings); and a female with elongated sub-marginal spots on all wings, N. Berks., 26.v.56. (6) *Euphydryas aurinia* Rott., a male with melanic anterior wings, Bucks., 27.v.56; and a male with left posterior wing bleached, Bucks., 27.v.56. (7) *Polyommatus icarus* Rott., a male ab. similar to the ab. *antidiscoelongata* B. & L. of *Lysandra coridon* Poda, Oxon., 24.viii.56; three females ab. *caerulea* Tutt; and a female ab. similar to the ab.*anticrassipuncta* B. & L. of *L. coridon*, Oxon., 13.viii.56. (8) A series of aberrations of *Lysandra coridon* Poda, all taken in a restricted locality in Southern England, including male upperside abs. *inframarginata* B. & L. and *fowleri* South; male underside abs. *postobsoleta* B. & L., *obsoleta* Tutt, *postcaeca* B. & L. and *arcuata* Courv. Also shown were: female upperside ab. *semisyngrapha* Tutt, female underside abs. *antiobsoleta* B. & L. + *albescens* Ckll., *discreta* Tutt + *virgularia* B. & L. + *albescens* Ckll., *arcuata* Courv., *bi-I-nigrum* B. & L., *ultraconfluentiae* B. & L., *ultranubila* B. & L., *nubila* B. & L., *costajuncta* Tutt and *grisea* Tutt. (9) *Lycaena phlaeas* L. three female aberrations, *impuncta* B. & L., *antidiscoelongata* B. & L., and *minor* Tutt, N. Berks., 9.x.55. (10) *Thymelicus sylvestris* Poda, two males with bleached areas on the anterior wings from Surrey and Oxon., 28.vii.56 and 13.viii.56. (11) *Ourapteryx sambucaria* L., a male with left posterior wing and left third leg of half the usual size (set reverse), taken Birmingham University, Warwicks., 19.vii.56.

Mr. B. R. Baker—Lepidoptera and Trichoptera from the Kennet Valley, Berks. (1) Lepidoptera: *Plusia chryson* Esp., a bred series, *P. festucae* L., *P. iota* L., *P. pulchrina* Haw., *Celaena leucostigma* Hb., *Leucoma salicis* L., *Parastichtis suspecta* Hb., *Lygephila pastinum* Treits., *Leucania obsoleta* Hb., *L. straminea* Treits., *Eustrotia uncula* Clerck, *Earias clorana* L., *Apamea ophiogramma* Esp., *Phalaena typica* L., *Xanthorhoë quadrifasciata* Clerck, *Gortyna* (*Hydraecia*) *petasitis* Doubl., two adults bred from pupae and four adults caught by dusking. (2) Trichoptera: *Phryganes grandis* L., *Grammotaulius atomarius* (F.), *Glyphotaelius pellucidus* Retz., *Limnephilus incisus* Curt., *L. rhombicus* (L.), *L. decipiens* (Kol.), *L. lunatus* Curt., *L. extricatus* McLach., *L. marmoratus* Curt., *Anabolia nervosa* (Curt.), *Potamophylax stellatus* Curt., *Halesus radiatus* (Curt.), *Brachycentrus subnubilus* Curt., *Lepidostoma hirtum* F., *Molanna angustata* Curt., *Leptocerus fulvus* (Ramb.), *L. aterrimus* Steph., *L. cinereus* Curt., *L. albifrons* (L.), *L. dissimilis* Steph., *Mystacides azurea* (L.), *Triaenodes conspersa* (Ramb.), *Hydropsyche angustipennis* (Curt.), *H. ornatula* (McLach.), *Cyrnus flavidus* McLach., *Tinodes waeneri* (L.), *Lype phaeopa* (Steph.) and *Rhyacophila dorsalis* (Curt.).

Mr. J. V. Banner—*Brachionycha nubeculosa* Esp. bred from ova obtained at Aviemore, Inverness-shire, deposited in 1952 and being nearly four years in pupal state; *Euphydryas aurinia* Rott. from larvae taken in North Wales; *Agapetes* (*Melanargia*) *galathea* L., minor aberrations taken in Dorset; *Pieris napi* L., aberration bred from female taken in North Wales; and *Hadena conspersa* Schiff. from North Cornwall.

Mr. S. Beaufoy—(1) Photographic life history of *Maculinea arion* L., female reared from the egg in walnut-shell nests with the ants *Myrmica laevinodis* Nyl. in the manner first used by E. B. Purefoy many years ago. The eggs were laid by a female captured in North Cornwall. (2) Photographic life history of *Apatura iris* L., ova were found in a wood in East Suffolk, and the insects were reared in captivity.

Mr. Cecil L. Bell—*Lysandra coridon* Poda abs. *antidiscoelongata* B. & L. + *postlimbojuncta* Courv. male, *discoidajuncta* B & L., female; *Lysandra bellargus* Rott. abs. similar to the abs. *albescens* B. & L. + *antiradiata* B. & L., *postlimbojuncta* Courv., and *anticaeca* B. & L. of *L. coridon* Poda, males; *Carterocephalus palaemon* Pall., a female with melanic forewings and rayed hindwings (Plate III, figs. 5 & 6); *Gonepteryx rhamni* L., gynandrous streak on left forewing, male, and a somatic mosaic left forewing and right hindwing; *Coenonympha pamphilus* L. ab. *transformis* Leeds, male.

Dr. H. Bellringer—see Messrs. Kenneth and Bernard West.

Mr. H. W. Bird—(1) Varieties of the following Lepidoptera: *Aphantopus hyperantus* L., *Argynnis aglaia* L., *Sterrha biselata* Hufn. dark form, *Tethea duplaris* L., *Cybosia mesomella* L., *Amphipyra pyramidea* L. dark form, *Cryphia muralis* Forst., *Hydraecia paludis* Tutt, *Apamea remissa* Hb., *A. crenata* Hufn. ab. *nigro-rubida* Tutt, *A. unanimis* Hb., *A. ophiogramma* Esp., *Phlogophora meticulosa* L. dark form, *Procus versicolor* Borkh., *P. literosa* Haw., *Agrotis clavis* Hufn. black form, *A. exclamationis* L., *Hypena proboscidalis* L., *Hadena contigua* Schiff., *H. bombycina* Hufn. (*glauca* Hb.), *Amathes ditrapezium* Schiff., *Cucullia absinthii* L., *Chilodes maritima* Tausch., *Arenostola fluxa* Hb., *Actebia praecox* L., *Cosmia pyralina* Schiff., *Herminia barbalis* Clerck, *Lygris mellinata* F. with jointed bands (Plate III, fig. 4), *Cosymbia punctaria* L., *Opisthograptis luteolata* L., *Xanthorhoë montanata* Schiff. (Plate III, fig. 10), *X. fluctuata*

L., *X. spadicearia* Schiff. *Itame wauaria* L. (Plate III, fig. 12), *Ecliptopera silaceata* Schiff., Plate III, fig. 11), *Cocalis elinguaria* L., *Gonodontis bidentata* Clerck including the dark form, *Alcis jubata* Thunb. (*glabraria* Schiff.), *Aspitates ochrearia* Rossi, *Epirrhoë alternata* Müll., *Thera variata* Schiff., *Dioryctria splendidella* H.S., *Chilo phragmitellus* Hb., *Donacaula mucronellus* Schiff., *Crambus margaritellus* Hb., *C. latistrius* Haw., *Diasemia litterata* Scop., *Alucita galactodactyla* Schiff., *Lozotaeniodes formosana* Fröl. (2) Also various forms of *Euxoa tritici* L.

Mr. C. S. H. Blathwayt—Some migrant moths taken at Weston-super-Mare, Somerset: *Acherontia atropos* L., one specimen taken at light on 7.viii.56; *Herse convolvuli* L., two specimens taken at light on 10 and 14.ix.56; *Lithosia quadra* L., a selection from 30 specimens taken at light in late July and September 1956; *Heliothis peltigera* Schiff., one specimen taken at light on 24.ix.56; *H. armigera* Hb., two specimens taken at light on 23/24.ix.56; *Cosymbia puppillaria* Hb., one specimen taken at light on 24.ix.56; and *Palpita unionalis* Hb., two specimens taken on 24.ix.56 and 1.x.56.

Lt.-Col. W. Bowater—Examples of moths taken in a mercury vapour trap, in a garden, one mile from Birmingham Town Hall. Forty species (46 specimens) out of the 149 species taken during 1954-56, among which were the following:—*Alcis repandata* L. with left antenna female and right antenna male; *Tethea ocularis* L., *Apatele leporina* L., *A. alni* L., *Plusia festucae* L., *Cucullia absinthii* L., *Lycophotia varia* Vill. (a heather feeder); also four pine feeders:—*Bupalus piniaria* L., *Ellopia fasciaria* L., *Semiothisa liturata* Clerck, and *Thera obeliscata* Hb. Also an *Ennomos quercinaria* Hufn. var. with median lines approximating.

Mr. and Mrs. E. L. Bolton—Lepidoptera taken during 1956 in Surrey and Dorset. *Eumenis semele* L. male albino of grey form, very extreme—this insect was kindly captured for the exhibitor by Mr. R. C. Dyson of Brighton; a male aberration of the same species with reduced markings on forewings and with obsolete hindwings; and another, female, with eye-spots on hindwings obsolete, the hindwings are also rather heavily marked. *Maniola jurtina* ab. *postaurolancea* Leeds, three female examples of this very rare form, all heavily marked and one of them with the markings of a dark chocolate colour; another aberration has the upperside *antiaurolancea* Leeds and the underside *postaurolancea* Leeds, a female—this form is believed to be very rare in the female, the coloured area usually found in the forewings (upperside) is not darkened over as in the *obscura* forms but is almost absent and replaced by heavy brown scaling; possibly therefore this insect may have melanic tendencies.

Mr. S. R. Bowden—(1) Sexual mosaics in the *Pieris napi* L. species-group. The 18 exhibited specimens were obtained during the period 1951 to 1956 in the course of breeding applied to other ends. Many sexual mosaics have appeared in broods of hybrids of different subspecies; where these subspecies (or one of them) possess dusky yellow females the colour difference of male and female portions of the wings makes them more conspicuous. As early as 1900 (see *Entom.*, **33**: 161 *et seq.*; **34**: 11 *et seq.*), Standfuss showed that "gynandromorphous" specimens were more than usually frequent in F1 hybrids and very much more frequent still in secondary hybrids (back-crosses, etc.). However, many breeders have obtained similar mosaics in purely British stock. There is, of course, the possibility that even here hidden "races" with some quantitative sexual difference have been involved. (2) The "new" yellow form of *Pieris napi* L. The established yellow forms of *P. napi* are: (a) *sulphurea* Schöyon (*citronea* Frohawk, etc.), occurs equally in both sexes. The bright yellow colour can be very intense and extends over the disc of the forewing underside. (b) *flava* Kane, sex-limited to the female. The ochreous or even brownish yellow upperside colour does not extend to the underside forewing disc, which remains white. A further form, of pale yellow, has several times been mentioned. One or two rather poor examples were bred by the exhibitor in 1949, and others have been obtained by Mr. H. G. Short from the same stock. Mr. J. Shepherd's problematical pale females (1942, *Entom.*, **75**: 233-235) perhaps belonged to this form. There are other, earlier, references. The late Mr. J. Antony Thompson first obtained the form in 1944; the exhibited butterflies are from broods raised in 1956 from parents derived from his stock. The form appears to occur more often in the female than in the male (like the yellow-edged form called *citronella* Thompson, *Entom.*, **84**: 177). Moreover, the male seems to be even paler than the female when bred in the same environment, so that it is not always easy to distinguish it from the typical white form. However, even when the upperside is doubtful the underside forewing disc is often tinged with yellow. Both sexes are easily distinguished from *sulphurea*, though this might not be so in abnormal specimens. So far, results suggest inheritance as a sex-linked recessive; but Dr. E. B. Ford (1945, *Butterflies*, London, p. 197) states that sex-linkage has never been found in a butterfly. Mr. L. Goodson considers that the pale yellow form is referable to *lutea* Oberthür (*Lep. Com.*, **22**: 96), named from a Pyreanean female in 1899.

Mr. B. Boyce—A series of *Arctia caja* L. reared from larvae collected by beating from October 1955 to April 1956.

Mr. R. F. Bretherton—Lepidoptera taken or bred in 1956. (1) Aberrant forms:—*Mimas tiliae* L., with black hindwings and strongly contrasting markings on forewings, Ottershaw, 14.vi.56; *Polia nebulosa* Hufn. ab. *robsoni* Collins, Ottershaw, 24.vi.56; *Cosymbia porata* L., heavily and lightly speckled forms, Ham Street, 2.vi.56; *Hydriomena coerulata* F. ab. *infuscata* Prout, North Surrey, 26.v.56; *Melanchra persicariae* L., with the white reniform stigma largely filled by a black crescent, Abinger, Surrey, 14.vii.56; *Triphaena comes* Hb., one melanic and another with crosslines on the forewings unusually sharply defined, Ottershaw, 22.vii, 16.viii.56; *Euxoa tritici* L., small male measuring

31mm. and large female 42mm., both very dark, Ottershaw, 18 & 5.viii.56; *Orthosia gothica* L., female of uniform khaki colour, all markings obsolete, Ottershaw, 8.v.56; *Clossiana dia* L. ab. *mediofasciata* Schultz, male, Chantilly, Oise, France, 1.vii.56. (2) *Xanthorhoë biriviata* Borkh. A series of 1st generation, caught 21/26th May, and of 2nd generation, bred and caught 25th July/7th August, from a new locality in North Surrey. (3) Scarce migrants:—*Dioryctria splendidella* H.S., Abinger, Surrey, 21.vi.56; *Loxostege palealis* Schiff., Ottershaw, 9.viii.56; *Leucania albipuncta* Schiff., Ottershaw, 6.ix.56; *Rhodometra sacraria* L., Chobham, Surrey, 16.ix.56; *Herse convolvuli* L., female, Dungeness, Kent, 29.ix.56. (4) Other Lepidoptera from various localities. Ottershaw, Surrey: *Cucullia absinthii* L., at light, 2.viii.56; *Cossus cossus* L., at light, 14.vi.56; *Homoeosoma cretacella* Rössl., at light, 15.ix.56. Ottershaw and Pirbright, Surrey, *Odontosia carmelita* Esp. (3), at light, 4.v.56 and 30.iv.56. Woking (Surrey): *Anticollix sparsata* Treits. (2), from larvae, July 1956. Abinger Downs, Surrey: *Spilosoma urticae* Esp., 14.vii.56; *Atolmis rubricollis* L., 11.vi.56; *Setina irrorella* L. (8), 14.vii/6.viii.56; *Apatele alni* L., (2) 21.vi. & 3.vii.56; *Agrotis denticulata* Haw. (*cinerea* Schiff. nec Hufn.) (2) 28.v.56; *Euphyia cuculata* Hufn. (6) 18.vi/21.vii.56; *Hydrelia testaceata* Don. (2) 14.vii.56; *Cryptoblabes bistriga* Haw., 14.vii.56; *Cynaeda dentalis* Schiff., 6.viii.56; *Pempelia ornatella* Schiff., 6.viii.56; *Phycita semirubella* Scop., (6), 14.vii/6.viii.56; *Alucita baliodactylus* Zell., 8.viii.56; *Marasmarcha lunaedactyla* Haw., (2), 8.viii.56; *Horisme vitalbata* Schiff. (7), 28.v.56 and 6.viii.56; *Dipsosphecia scopigera* Scop., 8.viii.56. Mickleham, Surrey: *Colostygia multistrigaria* Haw., (8), 30.iii and 7.iv.56. Clandon Downs, Surrey; *Eupithecia denotata* Hb. (7), from larvae, July 1956; *Oidaematophorus carphodactyla* Hb., (9), from larvae 26.ix/18.x.56. Weybridge, Surrey: *Cirrhia ocellaris* Borkh., (10), from larvae 19.ix/5.x.56. Ham Street, Kent: *Trichiura crataegi* L., (2) from larvae 5.ix.56; *Moma alpium* Osb. (*Diphtera orion* Esp.), (3), 1.vi.56; *Cucullia asteris* Schiff., 1.vi.56; *C. gnaphalii* Hb., 28.vii.56; *Colobochyla salicalis* Schiff., 2.vi.56; *Schrankia taenialis* Hb., 28.vii.56; *Paracolax derivalis* Hb., (8), 28.vii.56; *Euphyia luctuata* Schiff., (10), 1.vi.56; *Dioryctria hostilis* Steph., (2), 2.vi.56; *Agrotera nemoralis* Scop., 2.vi.56; *Anania funebris* Stroem., (6), 1.vi.56. Dungeness, Kent: *Eilema pygmaeola* Doubl., (8), 27.vii.56; *Calophasia lunula* Hufn., from larva 5.vi.56; *Thalera fimbrialis* Scop. (2), 27.vii and from larvae 29.vii.56, *Eupithecia millefoliata* Rössl., (6), from larvae 19.vi/10.vii.56; *Earias clorana* L., (2), 27.vii.56; *Lasiocampa trifolii* Schiff., (2), from larvae 12 and 16.viii.56. Camber, Sussex: *Hydraecia hucherardi* Mab., from pupa 28.viii.56. New Forest, Hants, *Catocala promissa* Schiff. and *C. sponsa* L., (2), 17.viii.56. Chobham, Surrey: *Aegeria flaviventris* Staud. from larva 14.vii.56; *A. spheciformis* Borkh., (2), 11 and 22.vi.56. Newtonmore, Inverness-shire: *Pheosia tremula* Clerck, from larva 3.v.56.

Mr. H. Britten—(1) The following Tripetidae (Dipt.) from the British Isles: *Urophora spoliata* (Hal.), *U. cardui* (L.), *U. stylata* (F.), *U. solstitialis* (L.), *U. jaceana* (Her.), *U. quadrifasciata* (Meig.), *U. cuspidata* (Meig.), *Myopites blotii* (Bréss.), *M. frauenfeldi* (Schn.), *Ceratites capitata* (Weid.), *Platyparea poeciloptera* (Schrank), *Platyparella discoidea* (F.), *Rhacochlearia toxoneura* (Loew.), *Vidalia cornuta* Scop., *Rhagoletis cerasi* L., *Zonosema alternata* Fall., *Spilographa zoë* (Meig.), *S. artemisiae* (F.), *S. immaculata* (Meig.), *Vidalia* (*Spilographa*) *spinifrons* Schrd., *Goniglossum woedemanni* Meig., *Phagocarpus permunda* Har., *Prionimera* (*Acidia*) *cognata* Weid., *Philophylla heraclei* (L.), *Myiolia caesia* (Harr.), *Ceriocera cornuta* F., *C. microceras* Her., *Terellia serratulae* (L.), *T. longicauda* (Meig.), *Chaetorellia jaceae* (R.-D.), *Chaetostomella onotrophes* Loew., *Trypeta falcata* (Scop.), *T. tussilaginis* (F.), *T. colon* Meig., *T. ruficauda* (F.), *F. winthemi* Meig., *T. vectensis* Coll., *Icterica westermanni* (Meig.), *Campiglossa grandinata* Rdi., *C. argyrocephala* Loew., *Paroxyna plantaginis* (Hal.), *P. tessellata* Loew., *P. bidentis* Dsv., *P. loewiana* Hend., *P. misella* (Loew.), *P. parvula* (Loew.), *Oxyna parietina* (L.), *O. flavipennis* (Loew.), *O. proboscidea* (Loew.), *Sphenella marginata* (Fall.), *Ensina sonchi* (L.), *Tephritis vespertina* Loew.), *T. ruralis* Loew., *T. leontodontis* (Deg.), *T. conjuncta* (Loew.), *T. separata* Rdi., *T. conura* (Loew.), *T. bardanae* (Schrank), *T. hyoscyami* (L.), *T. cometa* (Loew.), *T. formosa* (Loew.), *Trypanea amoena* Trfld., *T. stellata* Fues., *Acanthiophilus helianthi* (Rossi.), *Hoplochaeta pupillata* Fall., *Ditricha guttularis* Meig., *Trypeta loricata* Rdi., *Xyphosia miliaria* (Schrank), and *Urophora jaceana* (Her.) male *in cop.* with *Ceriocera cornuta* F. female. (2) Also a large number of named examples from North, Central and South America, Australia, Africa, India and the Pacific Islands.

Miss W. M. A. Brooke—Species of Pitcher plants (*Nepenthes*) collected in Sarawak, one of which, *N. Rafflesiana*, makes pitchers of two shapes. Also several Sarawak plants which encourage ants.

Mr. Stuart E. W. Carlier—Broods of *Gonodontis bidentata* Clerck exhibiting melanism and de-scaling, to be described in his paper shortly to be read in title to the Society (see *Trans.*, p. 145). A copy of the paper accompanied the exhibit.

Mr. L. Christie—Examples of the species of the genera *Gyrinus* and *Orectochilus* (Col. Gyrinidae) which occur in the British Isles. See also Mr. W. R. B. Hynd and Mr. M. W. F. Tweedie.

Mr. G. A. Cole—Lepidoptera bred or caught in 1956. *Phigalia pilosaria* Schiff. (*pedaria* F.); *Biston strataria* Hufn. with melanic forms; dark examples of *Dasychira pudibunda* L. and *Selenia bilunaria* Esp.; a speckled *Crocallis elinguaria* L. (with another aberration of this species from N. Devon, 1945); *Xanthorhoë fluctuata* L. ab. *costovata* Haw., all from Dorking, Surrey; *Malacosoma castrensis* L. and *Leucania favicolor* Barr. taken at mercury vapour light in the Essex marshes; *Anepia irregularis* Hufn. and *Harpyia bicuspis* Borkh. which remained two years in pupa, bred from Suffolk and Tilgate Forest, Sussex, respectively; *Eupithecia millefoliata* Roessl. bred from S.E. Kent larvae; a male *Apatura iris* L. bred from a Surrey larva; *Lysandra coridon* Poda ab. *fowleri* South from the N. Downs; *Acherontia atropos* L. and examples of *Hydraecia hucherardi* Mab. taken at mercury vapour light on Romney Marsh, Kent, 15th September; *Calophasia lunula* Hufn. bred from Dungeness, Kent, larvae; *Procris globulariae* Hb. from Devil's Dyke, Brighton, Sussex; *Eustroma reticulata* Schiff. from the Lake District; *Xanthorhoë quadrifasciata* Clerck; *Sterrha muricata* Hufn. and a single example of *Dicycla oo* L. from the Peterborough district, Northants.; a red *Orthosia gracilis* Schiff. bred from Borth, Cardigan., larva; *Parascotia fuliginaria* L. bred from Effingham, Surrey, larvae; and a single *Hadena compta* Schiff. taken near Mildenhall, Suffolk.

Major A. E. Collier—Butterflies caught or bred during 1956: *Aphantopus hyperantus* L. ab. *lanceolata* Shipp, eight examples of the fourth generation; *Maniola jurtina* L. ab. *anommata* Verity, one male, also an extreme dark female underside, and a male with white hindwings; *Polygonia c-album* L., two males, one extreme melanic, the other with basal dark hindwing borders; *Thecla betulae* L., a male devoid of light markings; *Argynnis euphrosyne* L., a cream coloured and a banded male, two underside varieties; *Argynnis selene* Schiff., a dark-blotched female; *Euphydryas aurinia* Rott., a melanic male. *Lysandra coridon* Poda, aberrations as follows: *syngrapha* Kef., nine typical and six *inframarginata* B. & L., bred in the F2 generation; four males, *anticaeca* B. & L. + *postradiata* B. & L. + *sagittata* B. & L., *caeca* Courv., *confluens* Tutt and *glomerata* Tutt; a male *marginata* B. & L.; *fowleri* South, male upperside, bred; *ultrafowleri* B. & L., a male and a female underside, bred; *Lysandra bellargus* Rott. abs. *ceronus* Esper, *discoelongata* B. & L. and *discreta* B. & L.

Mr. S. Coxey—Lepidoptera from various localities as follows. Bolton, Lancs.: *Lithosia quadra* L., three specimens taken at mercury vapour light in the garden; *Anaplectoides prasina* Schiff., bred; *Apamea scolopacina* Esp.; *Venusia cambrica* Curt. Tilgate, Sussex: *Hyloicus pinastri* L.; *Harpyia bicuspis* Borkh.; *Stauropus fagi* L., some typical examples with some melanics; *Dasychira pudibunda* L., a melanic male; *Apatele alni* L.; *Triphaena pronuba* L., a variety with pale hind wings; *Hapalotis venustula* Hb. Sussex: *Scopula immorata* L. Barton Broad, Norfolk: *Harpyia furcula* Clerck; *Clostera curtula* L.; *Eilema deplana* Esp.; *Pelosia muscerda* Hufn.; *Triphaena interjecta* Hb.; *Celaena haworthii* Curt.; *C. leucostigma* Hb.; *Nonagria algae* Esp., a series bred ex 1956 pupae; *Coenobia rufa* Haw.; *Scopula immutata* L.; *Deuteronomos erosaria* Schiff., a dark form; *Orthonama lignata* Hb. Dorking, Surrey: *Celerio galii* Schiff., a short series bred from 1955 larvae. Ham Street, Kent: *Moma alpium* Osb., a short series bred from a 1955 female. Colchester, Essex: *Hadena compta* Schiff., a short series bred from 1955 larvae. Near Preston, Lancs.: *Plusia interrogationis* L.; *Lygris populata* L., a rayed dark ab. Hampshire: *Acosmetia caliginosa* Hb. Braunton Burrows, Devon:

Rhodometra sacraria L., a bred series of F3 generation, the buff examples only being shown. Conway, Caernarvon: *Sterrha eburnata* Wocke, a bred series from 1956 female. Grange-over-Sands, Lancs.: *Lomaspilis marginata* L., four forms, three being almost devoid of black markings and their borders being very narrow. Also a series of *Gonodontis bidentata* Clerck, a very pale form from N. Wales; an industrial melanic from Bolton, Lancs.; and the melanic form occurring in the Cheshire mosses.

Mr. Clifford Craufurd—A case showing butterflies and moths ex collection of Rev. Henry Back, Vicar of Banbury from 29th March 1860 to 8th February 1881, died 30th October 1891. Insects probably collected 1840 to 1890. Also Lepidoptera taken in a mercury vapour trap at Bishop's Stortford, Herts.: *Cosmia pyralina* Schiff., *C. affinis* L., *Hadena compta* Schiff., *Cirrhia ocellaris* Borkh., *Apocheima hispidaria* Schiff., *Bomolocha crassalis* F., *Plusia chrysitis* L. both the green and golden forms, *Spilosoma lubricipeda* L. one with only eight spots and one with only two spots. From Royston, Herts., *Lysandra coridon* Poda ab. *semisyngrapha* Tutt. From Hadham Hall School, at electric light, *Calothysanis amata* L. melanic form.

Mr. P. N. Crow—Four male *Leptidea sinapis* L., Bucks., August 1956; one female *Apatura iris* L., bred July 1956 from wild ovum obtained in Bucks., August 1955; four *Strymonidia pruni* L., bred from larvae obtained in Bucks., May 1956; one *Maniola jurtina* L., with pale hindwings captured in Surrey, September 1956; two *Euplagia quadripunctaria* Poda ab. *lutescens* Staud., bred from wild larvae obtained in Devon, June 1956 (wild larvae are seldom found); three *Coscinia cribraria* L., from Dorset, July 1955; four *Ennomos autumnaria* Wernb., bred from ova obtained from wild female captured in Kent, September 1955; four *Coenotephria berberata* Schiff., bred from larvae obtained in Suffolk, September 1955; five *Emmelia trabealis* Scop., captured in Suffolk, June 1955; three *Mythimna turca* L., captured in Herts, July 1956; three *Oria musculosa* Hb., captured in Wilts., August 1956; two *Parascotia fuliginaria* L., bred from wild larvae obtained in Surrey, May 1956, three *Polia hepatica* Clerck (*tincta* Brahm.), bred from wild larvae obtained in Surrey, April 1956; three *Agrochola lychnidis* Schiff., bred from wild larvae obtained in Bucks, August 1955.

Dr. G. A. N. Davis—(1) Lepidoptera showing melanism in the natural state, specimens taken in a rural area either melanic or with strong melanic tendencies, shown with typical examples, all being taken during 1956: *Tethea duplaris* L., *Apatele leporina* L., *A. rumicis* L., *Craniophora ligustri* Schiff., *Agrotis exclamationis* L., *Apamea secalis* L., *Nonagria sparganii* Esp., *N. geminipuncta* Haw., *Orthosia incerta* Hufn., *Oporinia christyi* Prout, *Hydrelia testaceata* Don., *Ennomos autumnaria* Wernb., *Deuteronomos fuscantaria* Steph., *Crocallis elinguaria* L., *Colotois pennaria* L., *Phigalia pilosaria* Schiff. (*pedaria* F.), *Biston betularia* L., *Alcis repandata* L., and *Ectropis bistortata* Goeze. (2) Some unusual moths taken during the current season: *Acherontia atropos* L., 10.ix.56; *Celerio livornica* Esp., N. Cornwall, 2.vi.56; *Ceramica pisi* L., a teratological specimen, with two ill-formed right hind-wings and only two right legs; *Calophasia lunula* Hufn., bred from larvae taken in W. Kent on toadflax (*Linaria vulgaris* Mill.), 4.vi.56; *Calocalpe undulata* L., taken on Seal Chart, Kent; *Thera variata* Schiff., Aylesford, first Kent record; *Itame wauaria* L., *Colotois pennaria* L., pale specimen with dark brown cross lines. *Miltochrista miniata* Forst., a pure yellow specimen, a partly yellow one and a normal specimen for comparison.

Mr. C. H. Dixon—Lepidoptera as follows: (1) From New Forest, Hants.—*Nola strigula* Schiff., 14.vii.56; *Lithosia quadra* L., females, 14.vii.56; *Heliothis maritima* Gras., 9.vii.56; *Chloroclystis debiliata* Hb., 9.vii.56. (2) From Micheldever, Hants.—*Apatele alni* L., 11.vi.56; *Agrotis exclamationis* L., with orbicular, reniform and claviform joined in dark patch, 19.vi.56. (3) From Kincraig, Inverness-shire—*Triphaena sobrina* Boisd. and *Parastichtis suspecta* Hb., both 7/9.viii.56. (4) *Agrotis ripae* Hb., bred ex larvae, 16.ix.56, Kent. (5) *Euxoa cursoria* Hufn., 3/5.viii.56, Findhorn, Moray. (6) *Hydrillula palustris* Hb., 15.vi.56, Woodwalton, Hunts. (7) *Plusia chryson* Esp., bred ex larvae, 24.ix.55, Hants. (8) *Epione vespertaria* L., 28.vii.56, Strensall, Yorks.

Mr. R. C. Dyson—Selection of moths bred in 1956: *Hadena suasa* Schiff., series bred from ova laid by a female taken at light on Hayling Island, Hants. All of drab grey brown coloration with no variation. *Calophasia lunula* Hufn., bred from larvae found on Sussex coast in September 1955, all sizes of larva found during August, September and October. This species would appear to be single brooded, larvae that fed up and pupated early in July 1956 being still in pupa in October. *Hydraecia hucherardi* Mab., pupae dug in early August on Romney Marsh, Kent, moths emerged late August and early September. *Cirrhia ocellaris* Borkh., larvae obtained from poplar catkins (*Populus nigra* L.) in Thames Valley, fed in last stages on leaves of poplar. *Cirrhia gilvago* Schiff., larvae beaten from elm (*Ulmus glabra* Huds. (*montana* Stokes)) and some obtained from catkins of *Populus nigra* L. *Hadena compta* Schiff., larvae obtained from Sweet William (*Dianthus barbatus* L.), flower heads collected five miles from Dover, Kent. *Alcis repandata* L., specimens of various forms bred from larvae collected in Balcombe and Southwater Forests, Sussex, and in South Yorkshire. *Euphyia luctuata* Schiff., larvae beaten from Sussex woodlands in September 1955. Moths emerged January, February and March, 1956. *Ennomos autumnaria* Wernb., from this F6 generation seventeen specimens of ab. *brunneata* Cockayne were bred from two hundred larvae.

Mr. T. R. Eagles—Fungi collected at White Webbs Wood, Enfield, Middlesex: *Amanitopsis vaginata* (Bull.) Roze, *Clitocybe geotropa* (Bull.) Fr., *C. nebularis* (Batsch.) Fr., *Mycena inclinata* Fr., *Collybia maculata* (A. & S.) Fr., *Russula cyanoxantha* (Schaeff.) Fr., *R. ochroleuca* Fr., *Pholiota spectabilis* Fr., *Flammula sapinea* Fr., *Fomes* *ulmarius* (Sow.) Fr., *Daedalea quercina* (Linn.) Fr. and *Fistulina hepatica* (Huds.) Fr.

Canon T. G. Edwards—(1) Lepidoptera taken during the summer of 1956 at Studland, Dorset and Dulwich, Kent: *Notodonta dromedarius* L., *Tethea ocularis* L., *Nola cucullatella* L., *Parascotia fuliginaria* L., *Miltochrista miniata* Forst., *Eilema complana* L., *Leucania l-album* L. at sugar, Studland, *Caradrina alsines* Borkh., *Anchoscelis litura* L. showing range of variation, *Agrochola lychnidis* Schiff., *Anarta myrtilli* L., *Heliothis maritima* Gras., *Jaspidia fasciana* L. (*pygarga* Hufn.), *Lygephila pastinum* Treits., *Laspeyria flexula* Schiff., *Tholomiges turfosalis* Wocke, *Epirrhoë rivata* Hb., *Sterrha sylvestraria* Hb., *Scopula emutaria* Hb., *Lobophora halterata* Hufn., *Mysticoptera sexalata* Retz. (*sexalisata* Hb.), *Eupithecia assimilata* Doubl., *E. distinctaria* H.S., *E. satyrata* Hb., *E. subumbrata* Schiff. (*scabiosata* Borkh.), *Apeira syringaria* L. bred. Pyrales: *Rhodaria aurata* Schiff., *R. ostrinalis* Hb., *Anania verbascalis* Schiff., *Pyralis glaucinalis* L., *Dioryctria palumbella* F. Pterophoridae: *Platyptilia gonodactyla* Schiff., *P. pallidactyla* Haw., *Emmelina monodactyla* L., *Trichoptilus paludum* Zell., *Capperia britanniodactylus* Gregs. Tortrices: *Eucosma fulvana* Steph., *E. nigromaculana* Haw., *Tortrix fosterana* F., *T. viburniana* F., *T. unifasciana* Dup., *Argyroploce urticana* Hb., *A. cruciana* L., *A. corticana* Schiff., *A. striana* Schiff., *Hemimene alpinana* Treits. Tineides: *Ypsolophus xylostellus* L. bred, *Y. nemorellus* L. bred, *Depressaria pallorella* Zell. bred, *Telphusa vulgella* Hb., *Glyphipterix thrasonella* Scop., *Mompha decorella* Steph., Dulwich. (2) Taken in Dulwich at mercury vapour light between September and October 1956: *Cryphia perla* F. ab., *Luperina testacea* Schiff. ?abs., *Lampra fimbriata* Schreb., *Omphaloscelis lunosa* Haw., *Polychrisia moneta* F., *Scopula marginipunctata* Goeze, *Deuteronomos alniaria* L., *D. fuscantaria* Steph., *Colotois pennaria* L., *Hapalia ferrugalis* Hb., *Anania nubilalis* Hb., *Endothenia antiquana* Hb.

Mr. R. Eldon Ellison—(1) A selection of Lepidoptera collected in England and Wales in 1956 including *Acherontia atropos* L., *Herse convolvuli* L., *Hyloicus pinastri* L., *Harpyia* (*Cerura*) *bicuspis* Borkh., *Odontosia carmelita* Esp., *Lithosia quadra* L., *Apatele alni* L., *Amathes ashworthii* Doubl., *Agrotis trux* Hb. s.sp. *lunigera* Steph., *Hydraecia bucherardi* Mab., *Leucania albipuncta* Schiff., *Hapalotis venustula* Hb., *Colobochyla salicalis* Schiff., *Paracolax derivalis* Hb., *Zanclognatha cribrumalis* Hb., *Cosymbia puppillaria* Hb. (the fifth recorded British specimen), *Scopula immorata* Schiff., *Oporinia christyi* Prout, *Xanthorhoë biriviata* Borkh., *Euphyia luctuata* Schiff., and *Palpita unionalis*; also a teratological specimen of *Citria lutea* Ström. (Pl. II, fig. 8) with four antennae, one on the right and three on the left. (2) A selection of Lepidoptera collected in Ireland during June-July 1956, including *Zygaena purpuralis* Brun., a pale race of *Stauropus fagi* L., *Harpyia* (*Cerura*) *furcula* Clerck, dark forms of *Spilosoma lubricipeda* L., (*menthastri* Esp.), a pale race of *Tethea fluctuosa* Hb., *T. duplaris* L., *Atolmis rubricollis* L., *Apatele alni* L., *Agrotis trux* Hb. s.sp. *lunigera* Steph., *Ammogrotis lucernea* L., a pale race of *Polia nebulosa* Hufn., *Hadena barrettii* Doubl., *H. capsophila* Dup., *Phothedes captiuncula* Treits., *Eustrotia olivana* Schiff., *Plusia bractea* Schiff., *Bomolocha crassalis* F. (*fontis* Thunb.), *Perizoma taeniata* Steph., a deep yellow form of *Ourapteryx sambucaria* L., a varied series of *Alcis* (*Cleora*) *repandata* L., including a melanic form and an ab. *conversaria* Hb. and *Alucita icterodactyla* Mann.

Mr. L. J. Evans—Lepidoptera from the Midlands: *Coenonympha pamphilus* L. taken at Malvern, Worcs., underside showing extremely pale markings; *Oporinia dilutata* Schiff., a very pale male with the two central bands missing from the forewings, taken at mercury vapour light, Birmingham, Warwicks.; *Xanthorhoë fluctuata* L., two melanic specimens taken at mercury vapour light, Birmingham, also a normal local form of each of the preceding species for comparison; *Eupsilia transversa* Hufn., a pathological specimen with the major portion of the left forewing as if in monochrome, Sutton Park, Warwicks.; *Laphygma exigua* Hb., a very unusual visitor to Birmingham, taken at mercury vapour light; *Tethea ocularis* L., a short series showing wild and bred insects from the Birmingham area. The following insects, of which a short series is shown, were taken at sugar (with one exception) in Wyre Forest, Worcs. *Agrochola macilenta* Hb.; *A. circellaris* Hufn.; *Episema coeruleocephala* L. (at light); *Allophyes oxyacanthae* L.; *Lithophane* (*Graptolitha*) *ornitopus* Hufn.; *Anchoscelis helvola* L.

Mr. R. Fairclough—(1) Lepidoptera of the past twelve months breeding and collecting. Migrant species: *Celerio galii* Schiff., bred *ab ovis*; *Herse convolvuli* L., at mercury vapour light, Leigh, Surrey; *Acherontia atropos* L., at mercury vapour light, Studland, Dorset; *Lithosia quadra* L., at mercury vapour light, Leigh; *Rhodometra sacraria* L., bred F2 generation, November 1955, Devon; *Cosymbia annulata* Schulze and *Lophopteryx cucullina* Schiff., bred, Bucks. Salt marsh species: *Leucania favicolor* Barr., *Spaelotis ravida* Schiff., *Spilosoma urticae* Esp., *Eupithecia subumbrata* Schiff., *Polia nitens* Haw., *Malacosoma castrensis* L., *Thetidia* (*Euchloris*) *smaragdaria* F., *Agdistis bennetii* Curt. Fen species: *Ethmia funerella* F., *Zanclognatha cribrumalis* Hb., *Arenostola extrema* Hb., *Leucania obsoleta* Hb. N.W. England species; *Ammogrotis lucernea* L., *Stilbia anomala* Haw., *Entephria caesiata* Schiff., *E. flavicinctata* Hb., *Odezia atrata* L., *Xanthorhoë munitata* Hb. Heath and Moss species: *Coenonympha tullia* Müll., *Celaena haworthii* Curt., *Tholomiges turfosalis* Wocke, *Crambus margaritellus* Hb., *Sterrha muricata* Hufn., *Argyroploce schulziana* F., *Diarsia dahlii* Hb., *Amathes agathina* Dup., *A. glareosa* Esp., also a melanic form of *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh. taken at mercury vapour light at Leigh, Surrey, shown previously 26th April (see p. 5). (2) Lepidoptera collected on Society's field meetings this year. Oxshott, 7th April: *Amphisbatis incongruella* Staint., *Laspeyresia servillana* Dup. (bred), *Coleophora alticolella* Zell.

(bred), Horsley, 22nd April: *Talaeporia pseudobombycella* Hb. Benfleet, 5th May: *Endothenia gentianana* Hb., *Phthorimaea atriplicella* F.R., *P. obsoletella* F.R., *Aristotelia brizella* Treits., *Goniodoma limoniella* Staint., *Heterographis oblitella* Zell. Thursley, 13th May: *Micropterix calthella* L., *Mompha conturbatella* Hb., *Leucoptera spartifoliella* Hb. Buxted, 20th May: *Micropterix aruncella* Scop., *Metriotes modestella* Dup., *Glyphipterix fischeriella* Zell., *Depressaria hypericella Hb.*, *Eana* (*Cnephasia*) *incanana* Steph., *Argyroploce pomedaxana* Pierce. Chobham, 27th May: *Trichoptilus paludum* Zell., *Evetria buoliana* Schiff., *Pleurota bicostella* Clerck, *Dyscia fagaria* Thunb. Horsley, 2nd June: *Scythropia crataegella* L., *Euzophera suavella* Zinck. Box Hill, 22nd July: *Mniophaga terrella* Hb., *Stomopteryx taeniolella* Zell. Addington, 19th August: *Nemotois scabiosella* Scop., *Lithocolletis scabiosella* Dougl. Betchworth, 2nd September: *Oidaematophorus carphodactyla* Hb., *Eupithecia denotata* Hb. Druid's Grove, 6th October: *Ethmia decemguttella* Hb.

Mr. Ian G. Farwell—*Argynnis cydippe* L.: one male underside aberration with unusual ground colouring; one female upperside aberration with large eye spot on forewing and other dark markings; both from New Forest, Hants, July 1956. *Argynnis paphia* L.: a selection taken in the New Forest during July 1956; a series of males showing slight variation on upperside with one underside with the silver markings practically absent; a series of female uppersides with variation from slight to extreme, one underside with excess silver markings and one underside with the black markings on the left forewings almost confluent; a series of var. *valesina* Esp. showing variation in ground colour. *Lysandra bellargus* Rott.: males—one typical upperside, one very large typical underside, one ab. *suffusa* Tutt with all four wings finely speckled with black, one ab. *obsoleta* Tutt having all four wings with different markings; females—one typical upperside, three ab. *semiceronus* Tutt, one upperside with elongated black spots on hindwings and absence of any orange, one underside with unusual ground colour, one ab. *caeca* B. & L., one ab. *albescens* B. & L., all taken in Dorset during June 1956. *Aglais urticae* L.: five aberrations bred from wild larvae taken at Brockenhurst, Hants., by Mr. J. F. Kimber: two of which are really extreme. *Arctia caja* L., aberrations from three generations bred at 70° F., fed on dandelion (*Taraxacum* sp.), and originating from a typical female taken at light.

Dr. J. F. D. Frazer—Minor varieties of butterflies from N. Kent, including *Maniola jurtina* L. female with aberrant apical spots; a male *Lycaena coridon* Poda with one hindwing dwarfed; a male *Hesperia comma* L. with left hindwing exhibiting albinism.

Mr. A. E. Gardner—(1) Lepidoptera: A series of *Xanthorhoë biriviata* Borkh., taken in the Home Counties, 2.vi.56; a series of *Euphyia luctuata* Schiff. bred from larvae taken at Ham Street, Kent, by Messrs. E. W. Classey and T. R. Eagles; a series of *Parascotia fuliginaria* L.

bred July 1956, F1 generation from female bred from larvae taken at Wisley, Surrey, 1955. (2) NEUROPTERA: A series of *Osmylus fulvicephalus* (Scop.) taken at Bratton Fleming, Devon, July 1956, by Mr. R. D. Weal. (3) COLEOPTERA: A collection of Carabidae made from the cliffs of east Norfolk from Happisburgh to West Runton, 1/7.ix.56. The cliffs consist of sands and clays of the Cromer Forest Bed Series and often attain a height of over 100 ft. It is in the cracks of the moist blue clay that the rare Carabid *Nebria livida* (L.) is found. Species taken were:—*Carabus violaceus* L., *Nebria degenerata* Sch., *N. livida* (L.), *Notiophilus palustris* (Duft.), *Loricera pilicornis* (F.), *Dyschirius arenosus* Steph., *Broscus cephalotes* (L.), *Asaphidion pallipes* (Duft.), *Bembidion stephensii* Crotch, *B. lampros* (Herbst.), *B. ustulatum* (L.), *B. andreae* (F.) var. *baulei* du Val, *Trechus obtusus* Erich., *Harpalus aeneus* (F.). *H. rubripes* (Duft.), *H.* (*Pseudophonus*) *rufipes* Deg. (*pubescens* (Müll.), *Bradycellus verbasci* (Duft.), *Amara apricaria* (Payk.), *A. aulica* (Panz.), *Pterostichus* (*Feronia*) *melanaria* (Ill.), *P. nigrita* (F.), *P. diligens* Sturm., *P. madida* (F.), *Calathus fuscipes* (Goeze), *C. melanocephalus* (L.). *C. piceus* (Marsh.), *Pristonychus terricola* (Herbst), *Synuchus nivalis* (Panz.), *Agonum ruficorne* (Goeze) and *A. dorsale* (Pont). (4) ODONATA: Aniszygoptera: *Epiophlebia superstes* Selys, Tokyo, Japan, S. Asahina, 1939. This species represents a relic of the suborder Aniszygoptera which had flourished in the Mesozoic era. Zygoptera: A number of species selected to show the variety of colour and form found within the suborder. Anisoptera: A series of *Sympetrum flaveolum* (L.) taken by Mr. E. W. Classey at Neusiedlersee, Burgenland, Austria, 1956. Specimens showed the wide variation of wing colouration in the females. (5) ORTHOPTERA *sens lat.*: Selected species to show the variation of colour and form found within the order.

Mr. P. J. GENT—One male *Leptidea sinapis* L. ab. *ganarew* Frhk. with typical specimen for comparison, Northants, 21.v.56; a series of four *Diarsia florida* Schmidt taken in N. Wales, 7.vii.56, with *D. rubi* View., 1st and 2nd brood from Northants.; *Anaitis efformata* Guen., an aberration with the two central bars on forewings absent, Wellingborough, 11.viii.56 (Plate III, fig. 8).

Mr. B. M. GERARD—An extensive collection of insects made on the Camargue Expedition of the Imperial College, which included Hemiptera (Homoptera and Heteroptera), Orthoptera, Hymenoptera and Odonata.

Mr. B. S. GOODBAN—see Mr. W. E. MINNION.

Mr. A. L. GOODSON—see Dr. H. B. D. KETTLEWELL.

Mr. A. W. GOULD—The following Coleoptera: *Badister sodalis* (Duft.), Cosford Mill, Surrey, 13.v.56; *Licinus depressus* (Payk.), Shoreham, Kent, 26.viii.56; *Harpalus rufitarsis* (Duft.), Cosford Mill, 13.v.56; *Anisodactylus nemorivagus* (Duft.), Cosford Mill, 13.v.56; *Pterostichus* (*Feronia*) *lepida* (Leske), Hartwood, Surrey, 5.viii.56; *Calathus piceus* (Marsh.), High Halstow, Kent, 18.vi.56; *Synuchus nivalis* (Panz.), Upper Halling, Kent, 1.vii.56; *Rantus frontalis* (Marsh.), High Halstow, 7.vii.56; *Xantholinus semirufus* Reitt., Borough Green, Kent, 26.vi.56; *Staphylinus pedator* Grav., Shoreham, 26.viii.56; *Malthinus balteatus* Suff., Shipbourne, Kent, 12.viii.56; *Dascillus cervinus* (L.), Upper Halling, 1.vii.56; *Cytilus sericeus* (Forst.), Cosford Mill, 13.v.56; *Diplocoelus fagi* Guer., Shoreham, 12.ix.56; *Mycetophagus atomarius* (F.), Mickleham, Surrey, 26.xii.56; *M. multipunctatus* F., High Halstow, 7.vi.56; *Mordellistena brevicauda* (Boh.), Upper Halling, 1.vi.56; *Aphodius merdarius* (F.), Fetcham Downs, Surrey, 20.iv.56; *Stenostola ferrea* (Schrank), Buxted, Sussex, 20.v.56; *Cryptocephalus pusillus* F., Upper Halling, 1.vii.56; *Cassida flaveola* Thunb., Shipbourne; *Dorytomus rufatus* Bedel, High Halstow, 22.vii.56; *Phytonomus austriacus* Schrank., High Halstow, 22.vii.56; *Cleopus pulchellus* Herbst, Upper Halling, 1.vii.56. Also the following Coleoptera taken by Miss C. McDermott, July 1956: *Patrobus assimilis* Chaud., Aviemore, Inverness-shire; *Podabrus alpinus* (Payk.), Ben Lawers, Perthshire, *Corymbites cupreus* (F.), Ben Lawers, *Luperus longicornis* (F.), Aviemore; *Otiorrhynchus arcticus* (F.) var. *blandus* Gyll., Aviemore.

Mr. G. M. Haggett and Mr. A. J. Wightman—Short series of the following British Agrotidae: *Atethmia xerampelina* Esp. from Sussex, including virtually unicolorous examples not referable to ab. *unicolor* Staud. (nor genetically related to that form), also examples of ab. *unicolor* Staud. and ab. *centrago* Haw. in both bred and weathered condition to show how great is the colour change in weathered individuals; *Cirrhia gilvago* Esp. various colour forms bred from Sussex and Kent larvae, including ab. *palleago* Hb. and a single *Agrochola circellaris* Hufn. to illustrate the great superficial similarity of ab. *palleago* to *A. circellaris*; *Agrotis ripae* Hb. forms from Hants-Sussex border compared with examples from Exmouth, Devon; *Euxoa tritici* L. large forms from Sussex and Norfolk caught wild or bred from dug larvae; *Petilampa minima* Haw. (*arcuosa* Haw.) from Sussex; *Arenostola morrisii* Dale (*bondii* Knaggs) bred from Folkestone, Kent, larvae; *A. elymi* Treits., dark and light males and less variant females from Camber, Sussex, bred.

Dr. Malcolm Hague—see Messrs. Bernard and Kenneth West.

Mr. H. E. Hammond—(1) Melanic preserved larvae of *Lasiocampa quercus* L. and *Arctia caja* L. bred by Mr. S. Gordon Smith compared with normal specimens, and one unusual tawny form showing no black hairs, Birmingham, Warwicks., 1944. (2) Representative specimens of preserved larvae obtained during 1956: *Luperina testacea* Schiff., *Apamea inferta* Ochs. (*sordida* Borkh.), *Procus furuncula* Schiff. (*bicoloria* Vill.), *Hydraecia paludis* Tutt., *Rhizedra lutosa* Hb., *Arenostola pygmina* Haw., *A. elymi* Treits., *Leucania pallens* L. (bred *ab ovis* G. M. Haggett), *L. impura* Hb. (reared under control, H. E. Hammond), *Anchoscelis helvola* L., *Panemeria tenebrata* Scop., *Eustrotia olivana* Schiff., *Rivula sericealis* Scop., *Zanclognatha* *tarsipennalis* Treits., *Colocalpe cervinalis* Scop., *Xanthorhoë biriviata* Borkh., *Euphyia unangulata* Haw., *Perizoma sagittata* F., *Coenotephria berberata* Schiff., *Eupithecia valerianata* Hb., *E. palustraria* Doubl. (*pygmaeata* Hb.), *Deuteronomos alniaria* L. (3) *Herse convolvuli* L. a female from the Scilly Isles.

Mr. E. J. Hare—(1) Single examples of the following Lepidoptera: *Hippotion celerio* L., South Devon, 15.ix.56; *Hydrillula palustris* Hb., Woodwalton Fen, Hunts, 11.vi.56; *Diasemia ramburialis* Dup., South Devon, 11.ix.56; *D. litterata* Scop., and *Anania stachydalis* Zinck, Ham Street, Kent, 31.v.56; *Evergestis extimalis* Scop., Pinden, Kent, 27.vii.56; and a series of *Hadena lepida* Esp. var. *capsophila* Dup., Co. Clare, Ireland, bred July 1956. (2) Aberrations of the following Lepidoptera taken during 1956: *Arctia villica* L., *Agrotis exclamationis* L. and *Diataraxia oleracea* L., Pinden, Kent; *Dasychira pudibunda* L. and *Jaspidia fasciana* L. (*pygarga* Hufn.), ab. *albilinea* Haw, Ham Street, Kent (Pl. III, fig. 7); *Aporophyla australis* Boisd., Dungeness, Kent.

Comdr. G. W. Harper, R.N.—Some interesting forms of Macrolepidoptera from the Badenoch district of Inverness-shire, including melanic aberrations of *Lycia hirtaria* Clerck, the first recorded examples of melanic *Phigalia pilosaria* Schiff. (*pedaria* F.), from rural N. Scotland, and a rare melanic aberration of *Dysstroma citrata* L. Three very rare aberrations of *Orthosia gothica* L. (a) ab. *circumsignata* Hasebrk., a sterile recessive the genetics of which are explained in E. B. Ford's book, *Moths*, in the New Naturalist Series, 1955, on p. 23. It is figured on Plate 9, fig. 9. (b) An extreme melanic of the typical form. (c) An extreme melanic of the form *gothicina* H.-S. An aberration of *Epirrhoë tristata* L. (Pl. II, fig. 6) with a reduced median band; examples of balanced dimorphism in *Pheosia gnoma* F., one form with ash grey thorax and abdomen, and another dark brown; both forms are almost equally common. Ab. *obsoleta* Tutt. of the butterfly *Aricia agestis* Schiff. s. sp. *artaxerxes* F., very rare in this species; and examples of *Erebia epiphron* Knoch, with much reduced spotting and orange bands.

Mr. M. W. Harper—*Erebia aethiops* Esp. male example showing albino tendencies over both forewings, while the hindwings remain normal, taken near Aviemore, Inverness-shire, 10.viii.56; *Dasychira pudibunda* L., male example taken at Oxshott, Surrey, 6.v.56, showing partial melanism; *Colobochyla salicalis* Schiff., four examples taken at Ham Street, Kent, 2.vi.56; *Rhodometra sacraria* L., a short series showing a wide range of variation, bred October 1955, from a female captured in Inverness-shire during August 1955, the larvae were forced and the pupae were maintained at room temperature; *Coenocalpe lapidata* Hb., five examples bred from a female taken in Inverness-shire during September 1955, the larvae were fed on *Ranunculus acris* L.; *Zygaena exulans* Hoch., a series taken in July 1956 near Braemar, Aberdeenshire.

Mrs. E. A. Heslop—(1) The following butterflies taken during 1956: *Leptidea sinapis* L., a female taken in Somerset, where the species is very local, on 24th June; *Apatura iris* L., three males taken in Wilts. on 27th July and 3rd August (2); *Lycaena phlaeas* L., a remarkable aberration of the male taken on the Turf Moor, Somerset, on 11th June, having the copper coloured part of the right forewing and all of the right hindwing white. (2) The following Lepidoptera taken by the junior members of the family: *Apatura iris* L., Wilts., 26 and 30.vii.56, 7.viii.56; *Leptidea sinapis* L., Wilts., 4.viii.56, this appears to be the first example of this species recorded in the County since 1945.

Mr. I. R. P. Heslop—Twenty-two examples of *Apatura iris* L., comprising 13 males and 9 females, taken by the exhibitor in 1956. Four of the males were bred, two ex Sussex and two ex Wilts. larvae, the remaining examples were caught wild also in Wilts. The dates of capture ranged from 11.vii.56 to 8.viii.56. The progeny resulting from some of the females was put out in the woods.

Mr. J. O. T. Howard—A series of *Orthosia gracilis* Schiff. bred from larvae taken on Bog Myrtle (*Myrica gale* L.) at Borth, Cardiganshire. The moths varied in colour from specimens indistinguishable from typical southern English insects through dusty pinks and reds, with or without the stigmata and submarginal line clearly defined, to very dark specimens with little or no red. The moths resembled New Forest forms; the Scottish colour range was not represented.

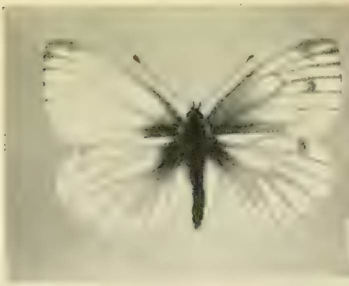
Mr. and Mrs. T. G. Howarth—Larvae, pupae and living imagines of *Mythimna turca* L. bred from Hertfordshire ova.

Mr. G. E. Hyde—Photographs of British Lepidoptera including *Argynnis paphia* L., *Apatura iris* L., *Agapetes* (*Melanargia*) *galathea* L., *Acherontia atropos* L., *Hemaris fuciformis* L., *Xylocampa areola* Esp. and *Phigalia pilosaria* Schiff. (*pedaria* F.).

Mr. W. R. B. Hynd (visitor) and Mr. L. Christie—Thirty-seven species and one variety of the Orders Megaloptera, Neuroptera and Mecoptera which occur in Great Britain. Species of special interest are:—Neuroptera: *Parasemidalis annae* Ender., *Psectra diptera* (Burm.), *Eumicromus angulatus* (Steph.) and *Sympherobius pellucidus* (Walk.). Mecoptera: *Panorpa germanica* L. f. *borealis* Steph. and *Boreus hyemalis* (L.).

ANNUAL EXHIBITION, 27th October 1956.

1. Pieris rapae L. bilateral gynandromorph (R. E. Stockley). 2. Amathes c-nigrum L. albino (Lt.-Col. W. B. L. Manley). 3. Strymonidia w-album Knoch. female underside ab. (Brig. C. G. Lipscomb). 4. Lygris mellinata F. ab. (H. W. Bird). 5 and 6. Carterocephalus palaemon Pall. melanic ab. upper and undersides respectively (C. L. Bell). 7. Jaspidea fasciana L. ab. albilinea Haw. (E. J. Hare). 8. Anaitis efformata ab. (P. J. Gent). 9. Agrotis puta Hb. somatic mosaic (D. Alfold). 10. Xanthorhoë montanata Schiff. ab. (H. W. Bird). 11. Ecliptopera silaceata Schiff. ab. (H. W. Bird). 12. Itame wauaria L. ab. (H. W. Bird).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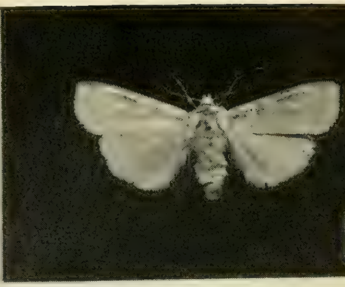
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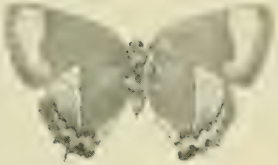
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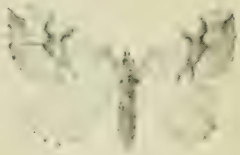
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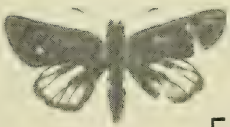
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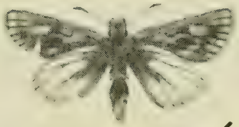
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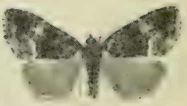
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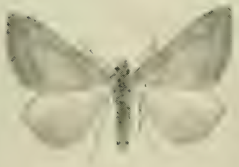
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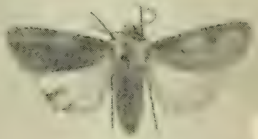
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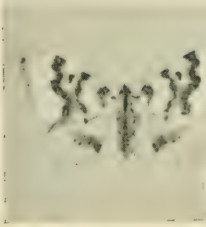
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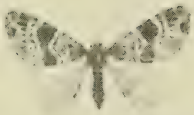
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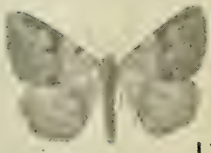
12

[Photographs by H. W. T. Tams and the British Museum (Nat. Hist.)

Captain R. A. JACKSON—A male *Lysandra coridon* Poda (one of three) and a female ab. *syngrapha* Kef. (one of two) bred together with a typical female at the F2 generation from *L. coridon* ab. *syngrapha*, the immediate parents being typical. Two very fresh female *Agrotis denticulata* Haw. (*cinerea* Schiff.) which came to light about 11.20 p.m. almost together, on 10th June. It was a warm evening (58° F.) with a strong, gusty, hot northerly wind blowing. The insects breeding ground is between one and two miles to the north and it also occurs on the Downs two miles to the south. Also two specimens of *Semiothisa liturata* Clerck ab. *nigrofulvata* Collins taken near Camberley, Sussex, where the typical form is common.

Mr. M. C. JACOBY—Lepidoptera: *Nymphalis io* L. ab. *belisaria* Ob. (clouding of hind wings only), taken on the wing at privet flowers in bright sunshine, Battle, Sussex, 3.viii.56.

Col. S. H. KERSHAW—Aberrations of Lepidoptera: *Limenitis camilla* L. ab. *nigrina* Weym., S.W. Beds., 21.vii.55; and ab. *seminigrina* Tutt, S.W. Beds, 28.vii.55. *Argynnis euphrosyne* L., a female with heavily marked central areas on forewings, S.W. Beds, 26.v.56; and a very pale female, S.W. Beds., 21.v.55. *A. paphia* L., a typical male but with dark and heavy markings, S.W. Beds., 22.vii.55; and a female with slightly striated upperside and ¼-inch silver border on underside of hindwings. *Lysandra coridon* Poda, minor aberrations of male and female undersides taken in Glouces. in 1955 and 1956 with typical examples. *Erebia aethiops* Esp., contrasting undersides of males and females from Loch Awe, Argyll, 10.ix.56, and Dunvegan, Skye, 12.ix.56; also an underside with no spots on red patches of forewings from Dunvegan, Skye, 12.ix.56; and, for comparison, undersides taken in Grassington, Yorks. in August 1912-1913.

Dr. H. B. D. KETTLEWELL and A. L. GOODSON for the Rothschild-Cockayne-Kettlewell Collection—Series of *Lycia hirtaria* Clerck ab. *nigra* Cockayne bred from Surrey ova, March and April, 1956, A. L. Goodson; series of *Lithophane ? lapidea* Hb. taken in the Isle of Wight, 11/16.x.56 (Kettlewell); *Orthosia gracilis* Schiff. ab. *cruda* Lenz., Isle of Wight, 1956 (Kettlewell); *Orthosia gothica* L. ab. *reducta* Lenz., Tring, 1956 (Goodson); *Ceramica pisi* L. melanic form, Cowdenbeath, Fife, 1956 (Goodson); *Agrotis segetum* Schiff. ab. *paradoxa* Cockayne, Tring, 1956 (Goodson); *Gortyna* (*Hydraecia*) *micacea* Esp. banded ab., Tring, 1956 (Goodson); *Triphaena pronuba* L. ab. *fumata* Cockayne, Tring, 1956 (Goodson); *Triphaena pronuba* L. ab. *decolorata* Turati, Tring, 1956 (Goodson); *Apamea infesta* Ochs., light and dark forms, Tring, 1956 (Goodson); *Rusina umbratica* Goeze, small dark Scottish form, Rannoch, 1956 (Goodson); *Apatele alni* L. ab. *steinerti* Caspari, Yorks, 1956 (Kettlewell); *Apatele megacephala* Schiff. ab. *nigra* Shaw, Yorks, 1956 (Kettlewell); *Apamea sordens* Hufn., with melanic tendency, Cowdenbeath, Fife, 1956 (Goodson); *Opisthograptis luteolata* L. ab. *intermedia* Harrison, Tring, 1956 (Goodson); *Opisthograptis luteolata* L. ab. *delineata* Lempke, Yorks, 1956 (Kettlewell); *Biston* *betularia* L. ab. nov., near Oxford, 1956, wild caught (Kettlewell) (Plate II, fig. 4); *Bupalis piniaria* L., pale underside, Glen Tannar, Scotland (Goodson); *Panaxia* (*Callimorpha*) *dominula* L., seven specimens, abs. nov., bred from "Rivers strain"; *Diacrisia sannio* L. ab. *moerens* Strand, Rannoch, 1956 (Goodson); *Spilosoma lutea* Hufn. ab. *fasciata* Dufrane, wild caught, Oxford, 1956 (Kettlewell); *Agrocola macilenta* Hb., showing range of colour at Tring, 1956 (Goodson).

Dr. H. B. D. Kettlewell—A series of *Lithophane lapidea* Hb., from 49 examples observed, October 1956, in the Isle of Wight, with living ♀ and ova on *Cupressus*. Dr. Kettlewell supplied the following note: "Since Dr. K. G. Blair took the first specimen on October 26th, 1951, no further specimen was taken in the Isle of Wight until the 8th October last year when I captured a male at mercury vapour light (unrecorded) in the same vicinity. Five others have been captured, all except one, at Eastbourne. In the last three years, we have mapped many of the concentrations of *Cupressus* occurring thoughout the island. Some of these were worked in the autumn of 1955 and in the spring of this year, but entirely unsuccessfully. Between October 11th-16th the work was concentrated on an entirely different part of the island. Forty-nine *lapidea* were captured and either kept for specimens or investigations, or released. Most of these were taken in special mercury vapour traps sunk in the ground and containing the food plant. Eggs have been obtained, and the females lay freely on *Cupressus macrocarpa*. The moth flies soon after dusk, and a female came to sugar at 6.30 p.m. (G.M.T.). I found a further female by day sitting 8 ft. up a Cypress trunk, on which it was practically invisible. In view of these observations, it can be stated that *L. lapidea* does not hibernate as a moth, but probably as an egg. Furthermore, that it may be locally common, and will possibly be found so in many southern coastal districts where old thick-trunked Cypress trees abound".

Mr. G. E. Law—Lepidoptera: (1) Series of *Cryphia perla* F. taken in 1956 from two walls at Stone, Dartford, where the species has long been established. Larvae from females taken at Sheerness, Folkestone, Ramsgate, Dungeness and elsewhere in Kent during the past six years were placed on those walls soon after hatching and it is thought that some of the moths exhibited may have resulted from interbreeding, since they differ from those normally found there. (2) Four *Hadena conspersa* Esp. ab. *hethlandica* Staud. and one example each of *Eupithecia venosata* F. ab. *fumosa* Gregs. and *E. satyrata* Hb. ab. *curzoni* Gregs., bred from larvae from Unst, Shetlands. (3) *Oria musculosa* Hb. (two) from Salisbury district, Wilts., 9.viii.56. (4) The following aberrations: *Lasiocampa trifolii* Schiff., a pale yellow male with transverse lines absent, Dungeness, Kent, 10.viii.51; *Colotois pennaria* L., a female with the space between the two transverse lines of the forewings filled in to form a deep brownish-fuscous band, Ham Street, Kent, 4.xi.55; *Lomaspilus marginata* L., Ham Street, 1.vi.56.

Mr. M. J. Leech—Lepidoptera from the following localities:—Formby, Lancs.: *Arctia caja* L. ab. *discojuncta* Cockayne and a wild caught example of ab. *nigrociliiata* Hoffman; *Apatele leporina* L.; *Orthosia munda* Schiff.; *Eustrotia uncula* Clerck; and a case of *Selenia bilunaria* Esp. showing results of inter-breeding, this was represented by a series of F3 and F4 generations together with a series of F3 × a wild caught Formby male; also wild caught *S. bilunaria* including two examples of ab. *eblanaria* Baynes. Bolton District, Lancs.: *Anaplectoides prasina* Schiff. which were very plentiful this year at mercury vapour light; *Petilampa minima* Haw.; *Apamea scolopacina* Esp.; *Venusia cambrica* Curt., again a common insect this season; bred specimens of *Gonodontis bidentata* Clerck with a scale deformity giving an almost transparent rayed appearance. Witherslack, Lancs.: *Odontosia carmelita* Esp. and *Orthosia gracilis* Schiff., one of which was the pink form associated with this, and other, localities. Arnside Knot, Lancs.: *Erebia aethiops* Esp. (*blandina* F.) which were in great abundance at the beginning of August. Brock, Lancs.: *Theria rupicapraria* Schiff. Longridge Fell, Lancs.: a series of the heather race of *Hydriomena furcata* Thunb. Tilgate Forest, Sussex: *Hyloicus pinastri* L., two specimens; *Arctia villica* L., one of which had reduced spotting on both wings; *Stauropus fagi* L., with a melanic example; *Harpyia bicuspis* Borkh.; *Apatele alni* L.; *Hapalotis venustula* Hb.; *Biston betularia* L., and the ab. *insularia* Thiery-Meigen; *Tethea or* Schiff.; *Cosymbia albipunctata* Hufn. (*pendularia* Clerck Auctt., nec Clerck) bred; *Semiothisa notata* L.; *Jaspidia fasciana* L. (*pygarga* Hufn.); *Cosymbia linearia* Hb. (*trilinearia* Borkh.). Also from a certain locality in Sussex a single specimen of *Scopula immorata* L. Wickham, Hants.: *Acosmetia caliginosa* Hb. and *Zygaena lonicerae* von Scheven, some of which showed a tendency towards ab. *confluens* Selys. Box Hill, Surrey: *Melanthia procellata* Schiff. Studland, Dorset: a bred series of *Cosymbia pendularia* Clerck (*orbicularia* Hb.). Burnt Wood, Staffs.: *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh. Burren, Co. Clare, Ireland: *Selenia bilunaria* Esp., bred from female taken last summer. Jersey, C.I.: *Mormo maura* L.; *Leucania albipuncta* Schiff.; *Mesotype virgata* Hufn. (*lineolata* Schiff.) and *Hypena obsitalis* Hb.

Mr. W. J. Le Quesne—Three Auchenorhyncha recently discovered in Britain: *Athysanus argentatus* F., Folkestone Warren, Kent; *Palus* (*Cosmotettix*) *caudatus* Flor., Amersham, Bucks.; *Empoasca viridula* Fall. (*subulata* Rib.), Benfleet, Essex.

Brig. C. G. Lipscomb—(1) *Aglais urticae* L. aberrations, two ab. *nigra* Tutt caught in Wilts., 8 and 9.viii.56, one of which was extreme; a very fine large ab. *semi-nigra* Frhk. with black hindwings, Wilts., 8.vii.56 (see *Ent. Rec.*, **68**: 227); an aberration with the right side normal but with the left side thinly scaled and purple-brown in colour, Wilts., 2.vii.56; an aberration with the ground colour buff-pink, bred Wilts., 1954; another with the ground colour dark purple-brown, bred

Wilts., 1954; and a form showing an absence of yellow from all wings and with ground colour dark brick-red, bred Wilts., 1956. (2) An extreme underside aberration of *Strymonidia w-album* Knoch, female (Plate III, fig. 3), this aberration is similar to an example described by Barrett as having "on the underside an extension of the white colour from the white line towards the margin, in the forewings forming a broad wedge-shaped band, but in the hindwings occupying the whole space from the white line to the orange band", Wilts., 24.vii.56 (see *Ent. Rec.*, **68**: 226).

Lt.-Col. and Mrs. W. B. L. Manley—An albino example of *Amathes c-nigrum* L. taken near Ham Street, Kent, 2.ix.56 (Plate III, fig. 2).

Rev. J. N. Marcon—The following Lepidoptera: *Apatura iris* L., three males; *Maniola tithonus* L., a male with pale hindwings; *Polygonia c-album* L. ab. *nigrocaria* (*in litt.*); *Lysandra coridon* Poda ab. *pulla* B. & L., female; *Maculinea arion* L., six examples including both males and females. *Argynnis selene* Schiff. ab. *confluens* (*in litt.*), male; also a male ab. *melaina* (*in litt.*), very extreme, the faintest outline of the fulvous discoidals showing on the forewings, some of the fulvous lunules of the hindwings suffused—the underside is also remarkable, most of the spots on the forewings having become thick, black wedges, and on the hindwings all the reddish markings are heavily obscured and darkened; also a male with the left forewing from the sub-median spots to the base tending to coalesce.

Mr. Dudley G. Marsh—The following Lepidoptera: *Herse convolvuli* L., males 25 and 30.viii.56, 5 and 6.ix.56, females 6 and 13.ix.56; *Acherontia atropos* L., male, Littlebourne, 19.ix.56; *Lithosia quadra* L., male, Ham Street, 2.viii.56; *Nycterosia* (*Nyctosia*) *obstipata* F. (*fluviata* Hb.), female, Ickham, 28.vii.56; *Simyra albovenosa* Goeze, female, Ickham, 31.vii.56; *Spilosoma lubricipeda* L., male, with buff forewings and another with forewings radiated; *Chaonia* (*Drymonia*) *ruficornis* Hufn., female dark variety with dark bands, and a light male variety with white bands; *Eilema deplana* Esp., male, Westwell, 10.viii.56; *Cirrhia icteritia* Hufn., male, pale lemon colour with pale purple band faintly marked, Ickham, 20.ix.56; *Apatele rumicis* L., one melanic form, Witherslack, July 1956; *Craniophora ligustri* Schiff., one melanic form, Witherslack, July 1956; a short series of *Hadena compta* Schiff., taken at mercury vapour light, Ickham, July 1956; a short series of *Calophasia lunula* Hufn., ex Dungeness larvae, bred June 1955; *Hydriomena furcata* Thunb., white banded female, Ickham, 28.vii.56; *Apamea monoglypha* Hufn. var. *infuscata* Buchanan-White, Witherslack, July 1956; *Hydraecia hucherardi* Mab., 1955; *Atethmia xerampelina* Esp., two with orange ground colour and purple grey band, Ickham, 1956; *Tiliaceae aurago* Schiff., varieties; *Anaplectoides prasina* Schiff.; *Polia hepatica* Clerck (*tincta* Brahm), Witherslack, July 1956; *Gortyna flavago* Schiff., dark banded form, Ickham, 13.ix.56; *Anchoscelis helvola* L., Ham Street, 22.ix.56; *Abrostola triplasia* L., Witherslack, July 1956; *Plusia festucae* L., Ickham, September 1956; *Amathes glareosa* Esp., Hoads Wood, 8.ix.56; *Drepana falcataria* L.; *D. lacertinaria* L.; *D. binaria* Hufn.; *Phragmatobia fuliginosa* L., varieties including *borealis* Staud., bred Folkestone; *Discoloxia blomeri* Curt., Witherslack, July 1956; *Scopula ornata* Scop., bred Dover, August 1956. A number of Microlepidoptera including: *Lozotaeniodes formosana* Fröl., *Ptycholomoides aeriferana* H.-S., *Hyponomeuta padella* L., *H. cognatella* Hb., *H. plumbella* Schiff., *H. evonymella* L., *Ethmia decemgutella* Hb., *E. funerella* F. and *E. bipunctella* F.

Miss C. A. McDermott—(1) Lepidoptera: *Coenonympha tullia* Müll., male with a homoeotic patch on the underside of the right forewing, taken in the Cairngorms, Inverness., 24.vii.56; a series of *Erebia epiphron* Knoch, taken in Perthshire, July 1956; *Lysandra coridon* Poda ab. *sessilis* Tutt, male taken near Maidstone, Kent, 11.viii.56, and ab. *castanea* Tutt, female also taken near Maidstone, 2.viii.56. (2) Orthoptera: *Roeseliana (Metrioptera) roeselii* (Hag.), male and female found near Chelmsford, Essex, 14.ix.56; *Pholidoptera griseoaptera* (Deg.), male and female found near Witham, Essex, 16.ix.56; *Conocephalus dorsalis* (Lat.), female found at Shellness, Isle of Sheppey, 30.ix.56, and a male found at Shingle Street, Suffolk, 15.ix.56; *Gomphocerus rufus* (L.), male and female found at Ivy Thorn, Somerset, 9.x.56; *Chorthippus albomarginatus* (Deg.), female found at Shellness, 30.ix.56; *C. parallelus* (Zett.), male and female found at Borough Green, Kent, 26.ix.56; and three unidentified Acrididae.

Mr. R. M. Mere—Varieties of Lepidoptera taken in 1956 of *Amathes c-nigrum* L. (Pl. II, fig. 2), *A. triangulum* Hufn. and *Ochropleura plecta* L. from Chiddingfold, Surrey; and *Cosymbia linearia* Hb. (Pl. II, fig. 7) from Marlow, Bucks. Also the following migrants of 1956: *Acherontia atropos* L. and *Celerio galii* Schiff., from Chiddingfold; *Diasemia ramburialis* Dup. from Lymington, Hants.

Mr. J. L. Messenger—*Xanthorhoë biriviata* Borkh., a short series of the spring and summer broods taken in Surrey, 1956; *Euphyia luctuata* Schiff., a series taken at Ham Street, Kent, 1956; *Calocalpe undulata* L. (Pl. II, fig. 5), a male taken at mercury vapour light with central fascia and basal patch blackish, Weybridge, Surrey, 10.vi.56; *Tethea ocularis* L., a specimen showing melanic tendency taken at Weybridge, 27.vi.56. Also the following migrants: *Leucania vitellina* Hb., taken at sugar, Dungeness, Kent, 30.ix.56; *Acherontia atropos* L., taken at mercury vapour light, Weybridge, 11.ix.56; *Nycterosia obstipata* F., a male taken at mercury vapour light, Weybridge, 12.x.56; *Palpita unionalis* Hb., a female taken at mercury vapour light, Weybridge, 11.x.56.

Mr. H. N. Michaelis—(1) Lepidoptera including: *Actebia praecox* L., Formby, Lancs.; *Xanthorhoë munitata* Hb., Malham, Yorks.; *Venusia cambrica* Curt., Malham, and dark forms from Goyt Valley, Ches.; *Scoparia ambigualis* Treits., a unicolorous fuscous form from mossland at Malham; *Eudoria (Scoparia) murana* Curt., Malham; *Argyrotoza (Peronea) caledoniana* Steph., Goyt Valley, bred from *Vaccinium myrtillus* L.—though previously unlisted, this is the main food on the moorlands; *Acleris hyemana* Haw. (*Peronea mixtana* Hb.), varied forms from the Cheshire mosslands; *Elachista kilmunella* Staint., Malham; *Lithocolletis spinolella* Dup., Wilmslow, Ches., bred from *Salix caprea* L. (2) Hymenoptera (Symphyta) including species of *Trichiosoma*, *Abia*, *Tenthredo*, *Macrophya*, *Dolerus*, *Arge* and *Athalia*.

Mr. W. E. Minnion and Mr. B. S. Goodban—(1) A series of *Ennomos autumnaria* Wernb. and ab. *brunneata* Cockayne in diagrammatic form to illustrate the history and genetics of the variety. (2) *Xanthorhoë biriviata* Borkh. and ab. *aestiva* Fuchs., the original exhibit shown last year with a more representative series including bred insects and additional notes and photographs. (3) Photographs of Natural History subjects.

Dr. B. P. Moore—(1) Odonata: three drawers of exotic Libellulidae and one drawer of mounted larval exuviae from his general collection. (2) Fungi: a small collection of British fungi which had been preserved by the freeze-drying technique.

Mr. A. M. Morley—Lepidoptera taken at light at Folkestone, Kent, October 1955 to October 1956 (with one or two exceptions): *Arctia caja* L., a lightly marked male, 9.viii.56; *Lithosia quadra* L., a fresh male, 13.viii.56; *Spilosoma lubricipeda* L., a male with white antennae, 23.v.56; *S. lutea* Hufn., a rather heavily marked male, 16.vii.56; *Apamea (Xylophasia) monoglypha* Hufn. f. *brunnea* Cockayne, female, rare in S.E. Kent, 28.vii.56; *Agrotis exclamationis* L. ab. *juncta* Tutt, male, 24.vi.56; *Meristis trigrammica* Hb. ab. *evidens* Borg., male, 24.vi.56; *Celama trituberculatus* Bosc. (*Roeselia aerugula* Hb.), male, white form *atomosa* Brem., 22.vii.56; *Hadena (Miselia) compta* Schiff., male, 25.vii.56, and female, 21.vii.56; *Parastichtis suspecta* Hb., male, 26.vii.56; first record for many years in this district; *Caradrina ambigua* Schiff., male, 10.ix.56, identified by W. H. T. Tams; *Opisthograptis luteolata* L., male with reddish border to front costa, 10.ix.56; *Lozotaeniodes (Eulia) formosana* Fröl., four males, 2-26.viii.55, becoming more numerous in Folkestone; *Aspitates (Crocota) ochrearia* Rossi, female deeply coloured, 8.ix.56, the only other examples I have of this shade come from Turkey; *Eupithecia intricata* Zett. f. *arceuthata* Frey., male and female, two of several taken in late June and early July 1956, not previously recorded from this area; *Ennomos autumnaria* Wernb., a heavily marked male, 26.ix.56; *Colotois pennaria* L., three rather heavily marked males, 11-13.xi.55; *Ennomos quercinaria* Hufn. f. *angularia* Hb., male, 25.ix.56; *Lycia hirtaria* Clerck, three males differing in depth of marking but without the yellow background of London specimens, 1-7.v.56; *Dioryctria splendidella* H.-S., not previously recorded from this area, identified by W. H. T. Tams, 12.vii.56; *Diarsia florida* Schmidt, male, identified by E. W. Classey, 20.vi.56; *Nyctegretis achatinella* Hb., male identified by S. N. A.

Jacobs and L. T. Ford, 17.vii.56; *Heterographis oblitella* Zell., male identified by S. N. A. Jacobs, 26.vii.56.

Mr. L. Hugh Newman—A pair of melanic *Gastropacha quercifolia* L., bred from wild collected Surrey larvae, with a pair of typical Kent forms.

Mr. G. B. Oliver—*Argynnis paphia* L., specimens of the inbred F5 brood (1956)—typical female and var. *valesina* Esp. showing colour variation in hindwing undersides from violet to bronze; a specimen with distinct upperside hindwing border spots repeated on the underside of the wing (? homoeosis); a female upperside, deep ground shade and hindwing border spots rayed. Also two wild male undersides of the same species from the New Forest, Hants, 1936 and 1943, the normal silvery borders of the hindwing are wanting, the centre bars violet tinted and the ground shade yellow-buff. Two male specimens of *Polygonia c-album* L. ab. *hutchinsoni* Robson which emerged from the late August brood of 1956. *Strymonidia w-album* Knoch, four specimens, including an albino male, reared from five larvae beaten near High Wycombe, Bucks., in 1919. A few extreme colour forms of *Colias croceus* Fourc., bred from an Isle of Wight female.

Mr. R. E. R. Parsons—Lepidoptera taken at Loch Calder and Dunnet Head, Caithness, the most northern point of the British mainland, during 1956 by Mr. D. H. Walker: *Argynnis aglaia* L., male and female; *Pieris napi* L., female; *Coenonympha tullia* Müll. var. *scotica* Staud., male and female; *Polyommatus icarus* Rott., female; *Maniola jurtina* L., male and female. Although the locality was visited several times throughout the summer no other species of Rhopalocera were observed.

Mr. R. M. Payne—The native British species of Tettigonioidea (Orthoptera), including *Decticus verrucivorus* (L.) taken in East Sussex in 1955 (a new County record).

Mr. W. J. Popham—Two specimens of *Catocala fraxini* L.

Messrs. N. B. and K. B. Potter—Rhopalocera taken in Hants. and Wilts. during 1956: *Agapetes* (*Melanargia*) *galathea* L., male, asymmetrical ab. with left hindwing much reduced in size; *Aglais urticae* L., four aberrations including one ab. *pallida* Mosley, 1896 (Frohawk, 1938), and another asymmetrical aberration; *Lysandra coridon* Poda, and a number of aberrations including *partimtransformis* B. & L., male; *minutissimus* + *albocrenata* Tutt, male; *syngrapha* Kef., female; *minutissimus* Tutt, female; *glabrata* Tutt, female; *obsoleta* Tutt, male; *confluentiae* Courv., male; *pulla* B. & L., female; and two asymmetrical aberrations—one with both right wings much reduced and the other with the right hindwing only reduced in size. Also *Aricia agestis* Schiff. ab. *alba* + *ultraradiata* B. & L. and *Lycaena phlaeas* L. ab. *radiata* Fro., female, both of which were exhibited last year.

Major-General A. L. Ransome—Lycaenidae taken during 1955 and 1956. (1) *Plebejus argus* L., male upperside ab. *partimtransformis* B. & L.; male underside ab. *crassicherro* B. & L.; female underside abs. *addenda* Tutt and *nigrescens* Tutt, all in June and July. (2) *Aricia agestis* Schiff., male underside abs. *crassipuncta* Tutt and *discreta* Tutt, May 1956. (3) *Polyommatus icarus* Rott., female upperside ab. *caerulea* Fuchs., female underside ab. *costajuncta* Tutt, both August 1955. (4) *Lysandra coridon* Poda, male upperside abs. *angustimargo* Tutt and *latiora* B. & L., female upperside abs. *flavescens* Tutt. *transformis* B. & L. and a specimen exhibiting homoeosis; female underside ab. *caeca* Courv., all in July and August. (5) *Lysandra bellargus* Rott., female upperside ab. *ceronus* Esp. and other examples extensively suffused with blue; male underside abs. *antijuncta* B. & L. and *obsoleta* Tutt; female underside abs. *antijuncta* B. & L. and *obsoleta* Tutt, May and June 1956. All insects from Hants.

Mr. A. Rennard—Lepidoptera as follows: *Polygonia c-album* L. ab. *f-album* Esp., taken at Ashburton, Devon, 31.vi.56; *Celerio galii* Schiff., taken at Ashburton, 31.vi.56; a short series of *Palpita unionalis* Hb., taken at Ashburton, 20-26.ix.56; *Harpyia* (*Cerura*) *furcula* Clerck, an aberration taken at Cadnam, Hants., 18.viii.56; *Heliothis armigera* Hb., a dark female taken at Ashburton, 25.ix.56; *Dioryctria splendidella* H.-S., taken Canford, Dorset, 19.vi-13.viii.56; *Diasemia ramburialis* Dup., male 22.ix.56, female 24.ix.56, at Ashburton; *Biston betularia* L., a dwarf taken at Canford, 3.vii.56; *Notodonta ziczac* L., a male exhibiting curious asymmetry taken at Canford, 26.v.56; *Lophopteryx capucina* L., a melanic example from Canford, 30.v.56; *Chiasmia clathrata* L. ab. *nocturnata* Fuchs, taken at Hod Hill, Dorset, 21.v.56; *Eupithecia irriguata* Hb., taken at Ashburton, 25.iv.56; *Leucania vitellina* Hb., taken at Ashburton, 7 and 22.ix.56; and *Cosymbia puppillaria* Hb., a female taken 23.ix.56, a male taken 26.ix.56 and a female ab. *gyrata* Hb., taken 25.ix.56, at Ashburton, with illustration of genitalia and the genitalia of allied species.

Mr. A. W. Richards—Lepidoptera captured or bred from larvae collected in Fleet, Hants., in 1956 (except where otherwise stated): *Melitaea cinxia* L., extreme variety similar to that on page 128 of Frohawk's *British Butterflies*, larvae from Isle of Wight, April 1956; *Polygonia c-album* L., extreme variety similar to Pl. II, fig. 2, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1953-4**; *Nymphalis io* L., extreme melanic aberration; *Lysandra coridon* Poda, forewings *obsoleta* Tutt, hindwings with very small spots, Shere, Surrey; *Plebejus argus* L., halved gynandromorph left side female, also underside varieties; *Maniola tithonus* L., with extra spots on underside, Alice Holt Forest; *M. jurtina* L. s.sp. *splendida* Buchanan-White, Shere; *Pyrgus malvae* L. ab. *taras* Berg., Aldershot, Hants.; *Coenonympha pamphilus* L., brilliant underside, Shere; *Hyloicus pinastri* L., nicely shaded; also melanic aberrations of *Tethea or* Schiff., *Agrotis clavis* Hufn. and *Amathes triangulum* Hufn. Other varieties and aberrations included: *Notodonta ziczac* L., lightly marked; *Alsophila aescularia* Schiff., very pale; *Bupalus piniaria* L., a curious form; *Triphaena comes* Hb., a hindwing variety; *Semiothisa liturata* Clerck ab. *nigrofulvata* Coll.;

Argynnis euphrosyne L., with confluent spots; *Cirrhia icteritia* Hufn. (*fulvago* L. auct. nec L.), richly coloured; also a series of *Biston betularia* L. and *B. strataria* Hufn., and a single example of *Lycia hirtaria* Clerck from N.E. Hants. during 1954-6.

Mr. Austin Richardson—Lepidoptera taken or bred during 1955-6: A series of the very bright race of *Maniola jurtina* L., approaching the Mediterranean race *hispulla* Esp., from the Scilly Isles, comparative with a short series from the Isle of Man; *Eumenis semele* L., a series of a bright form from the Isle of Man; *Polyommatus icarus* Rott., a series from Scilly, showing blue females; *Argynnis euphrosyne* L., a banded male aberration; Worcs.; *A. selene* Schiff., an aberration with rayed margins to forewings and heavily marked hindwings, Worcs.; *Acherontia atropos* L., Scilly; *Herse convolvuli* L., a male specimen, Scilly, with nine blown larvae, showing various forms and stages; of some 120 bred by the exhibitor and his friends only one larva reached the final instar in the green form, this having been one of six kept in solitary confinement almost from the start; *Celerio galii* Schiff., four specimens bred, July and August 1956, from wild larvae found on fuchsia in Glos., September 1955; *Triphaena comes* Hb., a series of the banded form from Scilly, including one red and two black forewing aberrations; *Thalpophila matura* Hufn., a short series, including one yellowish and two obsolescent aberrations, Scilly; *Amathes xanthographa* Schiff., pretty forms from Scilly; *Agrotis puta* Hb., bright, well marked series from Scilly; *Apamea monoglypha* Hufn., dwarf specimen, Glos.; *Eumichtis lichenea* Hb., series from Scilly, showing prominent white reniform stigmata, and a comparative series of the very pale form, bred, Isle of Wight; *Heliothis armigera* Hb., a specimen taken at mercury vapour light, Glos., 24.ix.56; *Plusia chryson* Esp., Oxford, 15.vii.56; *P. aurifera* Hb., fifth or sixth British specimen, Scilly, 16.ix.56; *P. gamma* L., a very dark aberration, Scilly; *Cosymbia puppillaria* Hb., Scilly, 15.ix.56; *Xanthorhoë biriviata* Borkh., a second brood series, Surrey; *X. munitata* Hb., short series of a grey form, Merioneth; *Oporinia dilutata* Schiff. ab. *latifasciata* Prout, Glos.; *Gonodontis bidentata* Clerck, a bred series of ab. *nigra* Prout, and a bred series of ab. *fenestrata* Cockayne, Staffs.; *Alcis repandata* L., a series bred from wild larvae, Caernarvon, including two ab. *conversaria* Hb., a specimen similar to the form bred by Alfred Hedges from a combination of ab. *conversaria* and a melanic (figured *Ent. Rec.*, **66**: pl. vi) and several of the so-called Penmaenmawr form, eleven ab. *conversaria* taken in one night, Somerset, 27.vi.56; one ab. *conversaria* of the same species and a melanic similar to the N. Wales form, from the Chilterns; *Aegeria flaviventris* Staud., four bred specimens, Oxon.

Mr. F. Rumsey—The following Lepidoptera with numerous aberrations including several obtained at the Society's field meetings: *Pararge aegeria* L., *Limenitis camilla* L., *Euchloë cardamines* L., *Laothoë populi* L., *Parasemia plantaginis* L., *Sesia apiformis* Clerck, *Zygaena filipendulae* L., *Lycia hirtaria* Clerck, *Eupithecia inturbata*

Hb., *Euphyia luctuata* Schiff., *Oidaematophorus carphodactylus* Hb., *Hapalia ferrugalis* Hb.

Mr. A. D. A. Russwurm—*Limenitis camilla* L. ab. *seminigrina* Tutt, three specimens, one male and two females, taken in the New Forest, Hants., during July 1956; *Argynnis paphia* L., ten specimens showing variation in black markings, eight females, including one dwarf, and two males mostly heavily marked, New Forest, July 1956; *A. cydippe* L., two males, one with central area of forewings suffused with black, the other with markings reduced, New Forest, July 1956; *Aglais urticae* L., one specimen of ab. *polaris* Staud., Riddlesdown, Surrey, August 1956; *Maniola jurtina* L., one male with white patches on both fore and hindwings, Riddlesdown, Surrey, August 1956; *M. tithonus* L., two males, one with area of pale ground colour on outer half of forewings, the other with buff markings missing from the underside of hindwings, New Forest, July 1956; *Aphantopus hyperantus* L., one male with white centres to rings greatly enlarged and appearing prominently on the upperside of hindwings, New Forest, July 1956.

Air Marshal Sir Robert Saundby—(1) A short series of the buff coloured form of *Spilosoma lubricipeda* L. (*menthastri* Esp.), from Ross-shire. (2) *Plusia acuta* Walk., female (Pl. II, fig. 3); this moth, an inhabitant of northern central Africa, was first taken in this country at Tunbridge Wells, Kent, in 1870 and had not been recorded since until two specimens came to light at Horsell, Surrey, and Burghclere, Hants., on the same night, 5/6.xi.55. (3) Melanic forms of *Rusina umbratica* Goeze (*tenebrosa* Hb.), *Ortholitha chenopodiata* L., and *Alcis repandata* L., contrasted with typical examples.

Dr. E. Scott—The following Lepidoptera: *Sterrha aversata* L., colour form; *Eilema deplana* Esp., reared from larvae on yew in Kings Wood, Challock, May 1956; by Mr. L. C. Bushby; *Lycaena argyrognomon* Berg., male aberration taken by Lt.-Col. H. Bridges at Berisal, Switzerland, 12.viii.56; *Chrysophanus amphidamus* Esp., female aberration taken at Korpilahti, Finland, 22.vi.34.

Mr. K. W. Self—Rhopalocera from Dorset, Kent and the New Forest, Hants:—(1) *Aphantopus hyperantus* L., specimens from Kent, abs. *caeca* Fuchs, *arete* Müll., and *lanceolata* Shipp; also two with obsolete forewing spots in one of which the hindwing spotting is comparatively normal and in the other almost indiscernible, July to August 1956; another specimen, August 1955, has the third spot on each forewing bi-pupilled and two spots on each hindwing as if misted over. (2) *Coenonympha pamphilus* L. abs. *postexcessa* Leeds and *latiora* Leeds, August 1956, Kent and ab. *aurea* Leeds, May 1955, Dorset. (3) *Nymphalis antiopa* L. and *Vanessa cardui* L., both from Folkestone, Kent, August 1955; the last mentioned is an aberration with hindwing spots devoid of the usual black spots and has other irregularities. (4) *Argynnis selene* Schiff., three males, Kent, June 1956, one has heavier black markings than is normal, one has extended lunules and the third has the hindwing spots confluent. (5) *Cupido minimus* Fuessl., female albino, Dorset, May 1955 and a male albino taken in same locality in June 1951; with, for comparison, typical examples. (6) *Plebejus argus* L., typical males of large form, with undersides, from a colony in a Kent Wood, July 1955; also two male albinos, one Kent, June 1953 and the other Dorset, July 1951, with by contrast a melanic male and female aberration from the New Forest, July 1953; also four males taken in Dorset, July 1951, spotted and/or streaked on the uppersides of the forewings, these do not appear to be ab. *transparens* B. & L. in as much as two examples each have only two spots in addition to the discoidal spot while the others have short streaks, all have normal sudmedian spotting on the undersides. (7) *Aricia agestis* Schiff., Dorset, May 1955, a series of minor male aberrations, several of which bear a striking resemblance to the Northern intermediate race; two of the specimens have asymmetrical orange lunules on the forewings and another is ab. *partimflavescens* B. & L., while yet another is an underside ab. *dextransversa* B. & L. + *decrescens* B. & L. (8) *Lysandra bellargus* Rott. two attractive blue male forms, Dorset, May 1955, and Kent, September 1956; also ab. *sinisflavescens* B. & L., Kent, September 1955 and an underside ab. *discreta* B. & L., Kent, September 1955; also male underside aberrations *fowleri* B. & L., *furvescens* B. & L., *antistriata* B. & L. and *antiglomerata* B. & L. (9) *L. coridon* Poda, all from Kent. Males: five melanic forms, three in August 1955 and one each year July 1952-3, with photographs of the undersides of the last two mentioned, perhaps four of these may best be described as extreme forms of ab. *pulla* B. & L. and the other as ab. *atrescens* Tutt. + *suffusa* Tutt, of some interest is the bronze sheen of the former and the deep grey fringes verging on black of the latter, underside they are ab. *nubila* B. & L. and ab. *fumidescens* B. & L.; also shown were an ab. *latiora* B. & L., and one with brown suffusion, both taken in September 1956. Underside forms of the same species are aberrations *irregularia* B. & L. and *pulla* B. & L., August 1955. Female aberrations: *glabrata* Tutt and *postradiosa* B. & L., both September 1956, and a specimen where, to all appearances, the normal orange lunules are represented by nondescript coloration with an overall of blue extending to the hindwing border spots, August 1955.

Mr. S. GORDON SMITH—*Arctia caja* L. aberrations *flavosignata* Closs., *mediodeleta* Cockayne, *albomedia* Cockayne, *schultzii* Frings and *rubra* Cockayne; also the following aberrations of the same species which have been described and named by the exhibitor and which have been reared by him during 1955 and 1956: *sordida*, *achlyoessa*, *nigrata*, *fusca*, *paurobalia*, *wrighti*, *abdominalis*, *lunulata*, *lutulenta*, *rufa*, *poveyi*, *upsilon*, *clostera*, *tapeta*, *aclea*, *pinax*, *monosema*, *pentaploa*, *pentacha*, *hectaploa*, *hexacha* and *taona*.

Mr. W. H. SPREADBURY—Various fungi and lantern slides of fungi.

Mr. R. E. STOCKLEY—Aberrations of British butterflies collected during the seasons 1952-53: *Argynnis selene* Schiff., two melanic forms, N. Sussex, May 1952 and 1953; *Pieris napi* L., a bilateral gynandromorph (Pl. III, fig. 1), Surrey, May 1956; *Lysandra coridon* Poda ab. *extrema* Courv., female, S. Downs, August 1955.

Mr. G. Stoughton Harris—(1) A selection of *Lysandra coridon* Poda taken in Wilts. in 1955 and 1956, and in Dorset in 1956. Males: variation of ground colour, size and width of black borders on the uppersides; and examples of *arcuata* Courv. and *obsoleta* Tutt on the undersides. Females: white spotting on the uppersides and examples of *arcuata* Courv. and *basijuncta* Tutt on the undersides with variations of ground colour, and in one case *obsoleta* Tutt on the hindwings and black streaks on the forewings. (2) A selection of *Plebejus argus* L. taken in the New Forest, Hants. and S. Devon in 1951-53 and in Surrey in 1956. Three of those taken in Surrey show patches of female colouring on the male uppersides.

Mr. H. D. Swain—(1) British and Continental Orthoptera. The Orthoptera shown were collected in France, Italy, Switzerland and Austria, as well as a separate case of specimens from Britain. The Continental insects comprise most of the principle European sections of the Order. Among the British species was shown a macropterous specimen of *Metrioptera brachyptera* L. f. *marginata* Thunb. This is the second macropterous specimen to be recorded in this country, and was taken in the grounds of Wellington College, Berks., 4.viii.41. The first, a female, was taken in the Early Vinery at the Royal Horticultural Society's gardens at Wisley, Surrey, in August 1921, by G. Fox-Wilson. This specimen is in the British Museum. The Continental exhibits showed many instances of cryptic coloration and interesting variations in colour according to habitat. (2) Coloured drawings of British Lepidoptera. Twelve plates representing some of the British moths, and forming part of the new edition of South's *Moths of the British Isles* to be published by Frederick Warne & Co.

Miss Vere Temple—Water colour drawings of the following Lepidoptera and larvae:—*Geometra papilionaria* L., *Malanchra persicariae* L., *Dasychira fascelina* L., *Apeira syringaria* L., also a water colour of the Orthopteron *Platycleis occidentalis* Zeun.

Mr. D. W. Thorpe-Young—Lepidoptera taken at Carshalton, Surrey: *Dasychira pudibunda* L., *Gastropacha quercifolia* L., *Sterrha aversata* L., *Ourapteryx sambucaria* L., *Apatele leporina* L., *Plusia iota* L., *Lymantria monacha* L.; also *Celerio galii* Schiff. bred from egg.

Mr. Trevor Trought—The following Jordan Lepidoptera, mainly from the Jordan Valley at about 100 to 225 metres below sea level:—Rhopalocera:—*Papilio machaon* L., *Doritis apollinus* Herbst, *Thais cerysi* Godt., *Danaus chrysippus* L., *Euchloë ausonia* Hb., *Euchloë belemia* Esp., *Colotis phisadia palaestinensis* Staud., *Teracolus fausta* Ol., *Polyommatus loewii* Zell., *Cosmolyce boeticus* L., *Azanus jesous* Guér., *Tarucus balcanicus* Frr., *Chilades galba* Led., *C. trochilus* Frr., *Hesperia phlomides* H.-S., *Carcharodes altheae* Hb., *C. lavatherae tauricus* Rev., *Gegenes nostrodamus* F. female and *Pelopidas thrax* L. Heterocera:—*Thaumetopea jordana* Staud. (whose larvae are processionary), *Derthisa didymogramma* Boursin, *Dendrolimus bufo* Led.

(with two blown larvae), *Bryopolia bacheri* Pung. (with two blown larvae), and a Gelechiid *Leobates fagoniae* Wlsm. (a North Moroccan species not previously recorded from Jordan). In the same box there was also a specimen of the Acriidid *Poeciloceras vittatus* Klug. from Petra. Also two pupae and photographs of *Aglais urticae* L. where one larva had pupated on a dead pupa of the same species. These were found in the wild on a withered inflorescence of dock, probably *Rumex crispus* L., at the Warwick Municipal Sewage Farm, Warwick, 23.ix.56. At the time of collection the upper larva which has now emerged, had not pupated. This indicated that the lower pupa was dead at that time. But it was a very long chance, if it was a chance, that one larva should select the precise spot selected by another for pupation as there were few solitary *A. urticae* L. seen and no other pupae. Or is the selection of a pupation site governed by some clear criteria which a larva recognises in some way?

Mr. E. E. J. TRUNDELL—A drawer of moths on setting boards showing typical method of setting. All taken at light at Woking, Surrey.

Mr. R. TUBBS—*Mimas tiliae* L. ab. *centripuncta* Clark, male with the central band in the forewing reduced to a single dot. Bred ab. ovo, Wimbledon, Surrey, 28.v.56.

Messrs. M. F. W. TWEEDIE and L. CHRISTIE—Eight examples of *Psolos* (=*Psodos*) *coracina* Esp., (Black Mountain Moth) (Selidosemidae) taken on Canisp, 27/28.vi. 56; two examples of *Staphylinus caesareus* Ced. (Col. Staphylinidae) taken in short heather in the Oykell Valley, 26.vi.56, and a single example of *Cephenomyia auribarbis* Meig. (Dipt. Calliphoridae) taken at 2,500 feet on Canisp, 27.vi.56. All the localities are in Sutherland.

Mr. S. WAKELY—Lepidoptera collected during the current season, including: *Stauropus fagi* L., *Dasychira fascelina* L., *Tethea duplaris* L., *Comacla senex* Hb., *Eilema griseola* Hb., *Agrotis vestigialis* Hufn., *Euxoa tritici* L., *Triphaena interjecta* Hb., *Tholera cespitis* Schiff., *Apamea ophiogramma* Esp., *Caradrina ambigua* Schiff., *Parastichtis suspecta* Hb., *Cirrhia icteritia* Hufn. (including ab. *flavescens* Esp.), *Tholomiges turfosalis* Wocke, *Sterrha sylvestraria* Hb., *Xanthorhoë quadrifasciata* Clerck, *X. biriviata* Borkh., *Crambus falsellus* Schiff., *C. contaminellus* Hb., *Platyptilia ochrodactyla* Schiff., *Lozotaeniodes* (*Eulia*) *formosana* Fröl., *Hyponomeuta vigintipunctata* Retz. (all taken at light, Byfleet, Surrey); *Leucania l-album* L. (at sugar, Ballard Down, Dorset); *Cirrhia ocellaris* Borkh. (bred, Weybridge, Surrey); *Heliothis maritima* Graslin (Studland Heath, Dorset); *Parascotia fuliginaria* L. (bred from ova, Byfleet); *Thetidia* (*Euchloris*) *smaragdaria* F. (bred S.E. Essex); *Euphyia rubidata* Schiff. (at light, Ballard Down); *Mesoleuca albicillata* L. (bred, Leigh, Surrey); *Procris statices* L. (Bookham, Surrey); *Aegeria flaviventris* Staud. (bred, Oxshott, Surrey); *Anania nubilalis* Hb. (bred, Moorgate, London); *Heterographis oblitella* Zell. (a fine series from Pitsea, Essex); *Trichophilus paludum* Zell.

(Horsell, Surrey); *Lozopera beatricella* Wals. (bred, Stanford-le-Hope, Essex); *Phalonia atricapitana* Steph. (over a dozen bred from one ragwort root, Ballard Down); *Phalonia gilvicomana* Zell. (bred, Boxhill, Surrey); *Capua grotiana* F. (Studland); *Ancylis unguicella* L. (Horsell); *Bactra furfurana* Haw. (Horsley, Surrey); *Argyroploce semifasciana* Haw. (bred, Studland); *Eucosma cnicicolana* Zell. (Ballard Down); *Laspeyresia funebrana* Treits. (bred, Benfleet, Essex); *L. conicolana* Heylaerts (bred, Horsell); *L. servillana* Dup. (bred, Oxshott); *L. pallifrontana* Zell. (bred, Trowbridge, Wilts.); *Aristotelia brizella* Treits. (bred, Creeksea, Essex); *Telphusa scriptella* Hb. (bred, Stanford-le-Hope); *Anybia epilobiella* Roem. and *Mompha nodicolella* Fuchs (Horsley); *Depressaria chaerophylli* Zell. and *D. pallorella* Zell. (bred, Ballard Down); *Ethmia decemguttella* Hb. (bred, Druids Grove, Surrey); *Coleophora spissicornis* Haw. (at light, Ballard Down); *C. erigerella* Ford (bred, Mickleham, Surrey); *C. caespititiella* Zell. (bred, Oxshott); *Cucullia asteris* Schiff. (bred, Benfleet); *Eidophasia messingiella* F. R. (bred, Stanford-le-Hope); *Nemotois fasciella* F. (bred, Stanford-le-Hope).

Mr. NORMAN A. WATKINS—Rhopalocera aberrations taken during 1956: *Agapetes galathea* L. ab. *vallentini* Williams, three males and six females including a dark female of the extreme form, a dwarf male and female, and a male with all black scaling to margin of right hindwing bleached to copper-brown, all from Somerset. *Aglais urticae* L., a male with hindwings almost wholly black and with some additional black scaling on the costa of forewings; a melanic male underside (normal upperside); a male with dark ground colour and thick black borders to forewings; a male with black scaling on hindwing nervures giving a rayed effect; a female with light scaleless patches on right fore and hindwings, all from Gloucestershire; also a male with pale pink and yellow ground colour from Dorset, July. *Polyommatus icarus* Rott., a blue female upperside, Wilts., 15th September; and a female underside ab. *antiultradiscreta* B. & L. approaching *antiradiata* B. & L., Somerset. *Lysandra coridon* Poda, male upperside aberrations—*marginata* Tutt, *inframarginata* B. & L., *glabrata* Tutt, *caeruleo* Tutt, *ultracaeruleo* B. & L., *ultralavendula* B. & L., *viridescens* Tutt, *viridescens* + *metallica* B. & L. + *transparens* Rebel, *ultraviridescens* B. & L. (the body hairs of this are olive-brown, but the fringes are off-white, otherwise it would be very near ab. *olivacea* B. & L.), *inframelaina* B. & L. + *ultraalbocrenata* B. & L. + *metallica* B. & L., two *metallica* B. & L. + *transparens* Rebel (one with thinly scaled forewings giving an impression of greyness, and with hindwings well scaled, the other with well scaled foregings but hindwings thinly scaled), *fowleri-margino* B. & L., *fowleri* South, *ultrapunctata-margino* B. & L.; male undersides—*anticaeca* B. & L. and *caeca* Courv. + *glabrata* Tutt; female uppersides—*syngrapha* Kef., *radiosa* Gaschet, *metallica* B. & L., *transparens* Rebel + *metallica* B. & L., *ultrapunctata* B. & L., *roystonensis* Pickett and *inaequalis* Tutt; female undersides

—minor aberrations. *Aricia agestis* Schiff., a remarkable male taken by Mr. G. H. W. Cruttwell in Wilts. in September, and kindly lent by him, set underside; upperside has ground colour of a milk chocolate shade and forewing discoidals are white as in var. *artaxerxes* F. The underside ground colour is a light ginger, and all basal and discoidal spots are absent, fringes are very little lighter than the ground colour of the wing. Also a small male example of the same species with streak of white scales from inner edge of lunules running towards the discoidal of the left hindwing, Wilts, 10.vi.56; and a female with abnormally large red lunules to all wings, Somerset, 1.ix.56.

Mrs. N. I. WATSON—*Lysandra coridon* Poda, various aberrations, both male and female.

Mr. B. K. WEST—Species of *Charaxes* (Lep. Nymphalidae) taken in S. Rhodesia, 1948, and Natal, 1956. (a) *Charaxes castor* Cram., *C. jahlusa* Trim. and *C. ethiocles* Cram. from Bulawayo, captured feeding at exuding sap on twigs of thorn bushes (*Acacia* sp.). (b) *C. ethalion* Bsd. from Melmoth, Zululand. Species common in plantations of Australian wattle (*Acacia* sp.), where it feeds on exuding sap. (c) *C. candiope* Godt., *C. druceanus* Btlr. and *C. cithaeron* Felder taken at bait (rotting bananas and beer) in rain forest at Eshowe, Zululand. (d) *C. brutus* Cram. bred from larvae found wandering in search of pupating sites, from Empangeni, Zululand. (e) *C. varanes* Cram. and *C. zoolina* Wwood. from Tongaat, Natal, and *C. baumanni* Reg. from the Chimanimani Mts., S. Rhodesia, caught flying on regular beats.

Messrs KENNETH and BERNARD B. WEST—A series of *Lophopteryx cucullina* Schiff. from Bedford, taken at mercury vapour light, a new record for the county. In conjunction with Dr. MALCOLM HAGUE—local races of *Coenonympha tullia* Müll., showing two forms, *tullia tullia* from Fylingdales Moor and Thorn Wastes, Yorks., and *tullia philoxenus* Esp. from Fenns and Whixall Mosses, and from Meathope Moss, Westmorland, taken during 1953-56. In conjunction with Dr. H. BELLRINGER—*Acherontia atropos* L. and *Herse convolvuli* L. taken at mercury vapour light at Waxham, Norfolk, 2.ix.56. Weather conditions were post anticyclonic, with a south-east wind, and considerable fog by midnight. There was heavy rain at times, and the lamp was placed under the shelter of a verandah with a southerly aspect, some 150 yards from the sea wall. The captures were from about 9.30 p.m. to just after midnight, at times the insects came in heavily beaded with moisture.

Mr. A. J. WIGHTMAN—see Mr. G. M. HAGGETT.

BARON C. G. M. DE WORMS—British Lepidoptera taken and bred at the end of 1955 and during 1956. (*a*) *Plebejus argus* L., a series of f. *caernensis* Thompson taken on the Great Orme Head, Llandudno in early July showing the blue form in the female. (*b*) A selection of species taken in Ireland at Tramore (Co. Waterford), Killarney (Co. Kerry) and in the Burren (Co. Clare) at the end of June and beginning of July: *Deilephila porcellus* L.; *Stauropus fagi* L., a very pale and large form; *Harpyia* (*Cerura*) *furcula* Clerck, a large female; *Notodonta ziczac* L., a pale race; *N. dromedarius* L.; *Tethea fluctuosa* Hb., a large and pale form; *T. duplaris* L., a very pale and silvery form; *Spilosoma lubricipeda* L., a series with cream or buff forewings; *Apatele alni* L., two examples; *A. leporina* L.; *Polia nebulosa* Hufn., a very pale and large form; *Hadena capsophila* Dup.; *H. contigua* Schiff., very pale; *Eumichtis adusta* Esp., very large and black; *Hama* (*Heliophobus*) *anceps* Schiff. (*saponariae* Borkh.), purple-brown form; *Apamea furva* Schiff., well marked race; *Phothedes captiuncula* Treits., brightly marked form from the Burren; *Eustrotia olivana* Schiff. (*argentula* Hb.); *Jaspidia fasciana* L. (*pygarga* Hufn.), a large form; *Abrostola triplasia* L.; *Plusia pulchrina* Haw., a bright form; *Sterrha immutata* L.; *Bomolocha crassalis* F. (*fontis* Thunb.), a very bright form; *Perizoma taeniata* Steph., a large and bright form from Killarney; *Cleorodes* (*Cleora*) *lichenaria* Hufn.; *Alcis* (*Cleora*) *repandata* L., a very varied series of pale forms as well as melanics and f. *conversaria* Hb.; *Angerona prunaria* L.; *Zygaena purpuralis* Brün., from the Burren. (*c*) A selection of Lepidoptera taken in the British Isles (excluding Ireland)—*Stauropus fagi* L., from Surrey and Sussex, dark forms; *Harpyia* (*Cerura*) *bicuspis* Borkh., four males from Tilgate Forest, Sussex; *Odontosia carmelita* Esp., Surrey and Perthshire; *Ptilophora plumigera* Schiff., from Kent, November 1955; *Setina irrorella* L., Surrey Downs; *Apatele alni* L., four examples from Tilgate Forest; *Amathes ashworthii* Doubl., a series taken at light in N. Wales; *Hadena compta* Schiff., bred from E. Kent; *H. bombycina* Hufn. (*glauca* Hb.), from Aviemore, Inverness.; *Amathes ditrapezium* Schiff., Surrey Downs; *Orthosia gracilis* Schiff., pink form from Perthshire; *Apamea scolopacina* Esp., Surrey and Wilts.; *Dasypolia templi* Thunb., from Freshwater, Isle of Wight; *Arenostola elymi* Treits., from Southwold; *Parastichtis suspecta* Hb., Surrey; *Hydraecia hucherardi* Mab., a series from Romney Marsh, Kent; *Cucullia lychnitis* Ramb., bred from Salisbury, Wilts.; *Cosymbia pendularia* Clerck (*orbicularia* Hb.), bred from the New Forest, Hants.; *Mysticoptera sexalata* Retz. (*sexalisata* Hb.), from Surrey and Suffolk; *Eupithecia millefoliata* Rössler, bred from Kent; *Ennomos quercinaria* Hufn., bred from the New Forest; *Apocheima hispidaria* F., from Alice Holt Forest; *Ectropis consonaria* Hb., from E. Kent. (*d*) Rare species and varieties of British Lepidoptera taken and bred at the end of 1955 and during 1956—*Chaonia* (*Drymonia*) *ruficornis* Hufn. ab. *albisignata* Lenz., male with a broad white band in the central area of the forewing, Woking, Surrey; *Drymonia dodonaea* Schiff. (*trimacula* Esp.), an example with black base to forewings and a black thorax, Woking (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1952/3**, Pl. III, fig. 6); *Spilosoma lutea* Hufn., a male with no black markings, Killarney, Co. Kerry; *Arctia caja* L., an example with a white fringe to forewings and some of the hindwing spots absent, Woking; *Agrotis puta* Hb., a male with extra black markings on the forewings, Woking; *Amathes alpicola* Zett., two large males bred from Aviemore, Inverness.; *Achlya flavicornis* L., a female with heavy bands on the forewings on a pale grey ground, Chiddingfold, Surrey; *Hadena caesia* Schiff., a blue-grey female from the Burren, Co. Clare; *Orthosia gothica* L., an extreme example of ab. *gothicina* H.-S., Aviemore; *Caradrina blanda* Schiff., a melanic form from the Burren; *Plusia acuta* Walker, an example of this African species taken at Woking, on the night of 5.xi.55, only two other British specimens are known to date, another obtained on the same night at Burghclere, Hants., and the original taken in 1870; *Xanthorhoë biriviata* Borkh., a series of the spring and summer broods obtained in Surrey; *Ectropis bistortata* Goeze, an example with generally suffused brown ground colour and the wavy cross lines absent, E. Kent; also a melanic form from Woking; *Biston strataria* Hufn., a very darkly suffused male from Chiddingfold. (*c*) A selection of Rhopalocera taken in Southern Bavaria at Garmisch, Patenkirchen and Murnau in early June; also a selection of Lepidoptera taken in Eastern Canada in late August and early September.

Mr. George H. Youden—A series of *Erebia epiphron* Knoch from Langdale Pikes and Red Screes, Westmorland, and *Coenonympha tullia* Müll. from Witherslack, Lancs. A series of dark *Apamea monoglypha* Hufn., *A. crenata* Hufn., *Abrostola triplasia* L., *Phothedes captiuncula* Treits., *Discoloxia blomeri* Curt., *Crambus pascuellus* L., all from Westmorland. A short series of *Entephria caesiata* Schiff. from Ilkley, Yorks. A short series of *Scopula ornata* Scop., *Horisme vitalbata* Schiff. and *Evergestis extimalis* Scop. from Dover, Kent. Immigrants taken in a mercury vapour trap at Dover during 1956: *Lithosia quadra* L., *Leucania vitellina* Hb., *Palpita unionalis* Hb., *Hapalia ferrugalis* Hb., *Lozotaeniodes formosana* Fröl., one example of *Apatele alni* L., 28th May, and *Hadena compta* Schiff., 14th October.

8th NOVEMBER 1956.

The President in the Chair.

The following new members were elected:—Mr. E. W. Groves and Mr. H. A. Kennard.

EXHIBITS.

Mr. R. Eldon Ellison—A teratological specimen of *Citria lutea* Stroem. (Lep. Agrotidae) which he had shown at the recent Annual Exhibition.

Mr. J. O. T. Howard—A series of *Orthosia gracilis* Schiff. (Lep. Agrotidae) bred from larvae collected from bog myrtle (*Myrica gale* L.) at Borth, Cardiganshire (which he had shown at the Annual Exhibition) in order to elicit comments.

Dr. B. P. Moore—Living adults of the Tenebrionid beetle, *Melasia culinaria* L., bred from larvae taken in rotten wood at Fontainebleau, France, 5.x.56.

COMMUNICATIONS.

Remarking on Mr. Howard's *Orthosia gracilis* Schiff., Mr. A. H. **Sperring** said they were nearest the New Forest form but differed in respect of the hindwing. Dr. C. G. M. **de Worms** said that they were the only series he had seen from Wales which had virtually produced the New Forest form. Mr. R. F. **Haynes** believed them to be similar to specimens he had bred from Co. Donegal, Ireland.

There followed a discussion on the Annual Exhibition which centred around some of the finer lepidopterous insects.

22nd NOVEMBER 1956.

The President in the Chair.

The following new members were elected:—Miss F. A. Ashby, Sir Eric Ansorge, Messrs. A. G. Wright, W. F. Davidson, R. J. Woodward, H. W. Bird and D. E. Hardy.

EXHIBITS.

Mr. R. **Eldon Ellison**—A dark example of *Herse convolvuli* L. (Lep. Sphingidae) from his trap at Eastbourne, Sussex, 21.x.56.

Mr T. R. **Eagles**—Foliage and fruits of Rue, *Ruta graveolens* L. (Rutaceae), the chief food plant of *Papilio machaon* L. (Lep. Papilionidae) in the Baghdad area (Wiltshire, E. P., 1956, *Ent. Rec.*, **68**: 257).

COMMUNICATIONS.

Mr. R. F. **Haynes** enquired whether Sicilian Rue was related to the plant exhibited because *Papilio machaon* L. was very common on Sicilian Rue in Malta, G.C. It is related, being *Ruta bracteosa* DC.

Three colour films shown by Mr. J. T. **Friedlein** dealt with Lepidoptera in Britain and Vancouver, B.C., also many places of interest visited during a trip round the world.

13th DECEMBER 1956.

The President in the Chair.

The following new members were elected: Dr. E. O. Williams, Messrs. J. S. C. Tidmarsh and A. C. B. Tidmarsh.

EXHIBITS.

Mr. F. D. **Buck**—An example of the Coccinellid beetle *Harmonia quadripunctata* (Pont.) taken on the Oxshott field meeting, 8.ix.56, together with a sketch of the pronotum to illustrate the characteristic markings of this species.

COMMUNICATIONS.

Plusia gamma L. (Lep. Plusiidae) was reported to have been out recently in fresh condition in both the Woking, Surrey and Eastbourne, Sussex, areas. The emergence of *Poecilocampa populi* L. (Lep. Lasiocampidae) was reported by Mr. J. O. T. Howard to have ceased completely in his district (Dorking, Surrey), but at Eastbourne, another member said, the insect was still present but there were more females than usual. Another moth which was stated to have continued beyond its normal time was *Agrochola macilenta* Hb. (Lep. Agrotidae).

Dr. C. G. M. de Worms gave an account of the Tenth International Congress of Entomology held in Montreal last August, which included details of his collecting in Canada at that time and was illustrated by coloured slides (see p. xliii).

10th JANUARY 1957.

The President in the Chair.

The death of Mr. H. O. Wells was announced.

It was also announced that the Lord Talbot de Malahide had been awarded the C.M.G. in the New Year's Honours List.

EXHIBITS.

Mr. K. A. Spencer—A tube of living Bruchidae (Col.) which he had bred from the seeds of a wild pea (*Lathyrus* sp.) collected in the Alps at Valais, Switzerland, in early August.

Mr. P. N. Crow—A melanic example of *Drymonia dodonaea* Schiff. (Lep. Notodontidae) taken in Norfolk during September 1955, also a typical male for comparison.

Mr. R. M. Mere—A short series of *Biston strataria* Hufn., and of *Apocheima hispidaria* F. (Lep. Geometridae) from Chiddingfold, Surrey, showing variation of both marking and colour.

Mr. A. E. Gardner—The following Mantoidea taken by Dr. P. S. Corbet at Jinja, Uganda, 1954-55:—*Pseudochaeta pantherina* Sauss., *Pseudocreobotra ocellata* P. de B. and *Sphodromantis lineola* Burm.

COMMUNICATIONS.

A number of reports were made of recent observations of Geometers. *Phigalia pilosaria* Schiff. (*pedaria* F.) was seen a few nights previously and another was noted at a lighted window on 4.i.57. On the previous night (9.i.57) *Erannis leucophaearia* Schiff. had been seen. A member commented on the disappearance of *Apocheima hispidaria* F. from the Portsmouth area of Hampshire.

Lantern slides and colour transparencies of insects and scenic views of various countries were shown by Dr. C. G. M. de Worms, Dr. B. P. Moore, Messrs. W. E. Minnion, R. F. Haynes, R. W. J. Uffen, J. D. Bradley and W. H. Spreadbury.

24th JANUARY 1957.

85th ANNUAL MEETING

(with which was combined the Ordinary Meeting).

Lt.-Col. W. B. L. Manley, F.R.E.S., President, in the Chair.

The minutes of the Annual Meeting held on 26th January 1956 were read, confirmed and signed.

The Hon. Treasurer, Mr. J. L. Henderson, presented his report and accounts and moved their adoption. Seconded by Mr. E. E. J. Trundell and carried.

The Secretary, Mr. F. T. Vallins, read the Council's report and moved its adoption. Seconded by Mr. R. Eldon Ellison and carried.

The President declared the following Officers and Ordinary Members of Council elected for 1957:—*President*: B. P. Moore, B.Sc., D.Phil., F.R.E.S. *Vice-Presidents*: Lt.-Col. W. B. L. Manley, F.R.E.S., N. E. Hicken, Ph.D., B.Sc., F.R.E.S. *Treasurer*: J. L. Henderson. *Secretary*: B. Goater, B.Sc., F.R.E.S. *Editor*: F. D. Buck. *Curator*: A. E. Gardner, F.R.E.S. *Librarian*: T. R. Eagles. *Lanternist*: L. Christie. Ordinary Members of Council: S. N. A. Jacobs, S.B.St.J., F.R.E.S., A. W. Gould, R. F. Haynes, R. M. Payne, A. H. Sperring, R. S. Tubbs, O.B.E., F.R.I.B.A., R. W. J. Uffen, F.R.E.S., F. T. Vallins, A.C.I.I., F.R.E.S., S. Wakely, C. G. M. de Worms, M.A., Ph.D., F.R.I.C., F.R.E.S., M.B.O.U.

EXHIBITS.

Mr. A. H. Sperring—Examples of *Angerona prunaria* L. ab. *smartaria* Williams (Lep. Geometridae) and read the following note: The name *smartaria* was applied by H. B. Williams (1947, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1946-7**: 135) to all dark forms of *corylaria* Thunb. pattern in which the central band of ground colour on the forewings is reduced. There are so many gradations between *corylaria* and *smartaria* that it is impossible to say where one ends and the other begins.

Miss C. A. McDermott—A lepidopterous larva on a tomato obtained from her greengrocer.

COMMUNICATIONS.

Mr. Sperring queried whether the larva exhibited by Miss McDermott was *Heliothis armigera* Hb. (Lep. Agrotidae), an example of which he had bred at a temperature of between 150-160° F.

The President read his address and, vacating the chair, inducted the new President, Dr. B. P. Moore, F.R.E.S.

Dr. Moore thanked the meeting for the honour they had done him and moved a vote of thanks to Lt.-Col. Manley combined with a request for permission to publish his Address. Carried by acclamation.

Lt.-Col. Manley replied and gave permission for the Society to publish his Address.

A vote of thanks to the Vice-Presidents, Officers and Council was proposed by Mr. L. Parmenter and seconded by Mr. T. J. Honeybourne; to which Mr. S. N. A. Jacobs replied.

Mr. J. L. Henderson proposed a vote of thanks to the Auditors.

24th JANUARY 1957.

PRESIDENT'S ADDRESS.

Read by Lt.Col. W. B. L. Manley, F.R.E.S.

Ladies and Gentlemen,

The time has now come for me to make my Presidential Address—I fear that in my case this term is far too grandiose for the occasion—however I am grateful for the opportunity of saying a few words, before taking leave of you all on vacating my position as your President, in favour of a man who will, I know, be able to serve you better than I have been able to do. I do not think that it would be out of place if I use this occasion to thank you once again for the honour that you have done me—an honour of which I shall always be conscious.

We have just heard the report of the Council for last year, the eighty-fourth of our existence but, before commenting on this, I should like to say a few words about the Officers who do all the work of running our Society. I often wonder how many of us have paused to consider the work involved in building up, and maintaining, a Society such as ours. I believe some of us are apt to take everything for granted; we assume that there will be a meeting here on two Thursdays every month, when well arranged reference collections and the library will be at our service; that there will be meetings in the field every week-end throughout the Summer; that there will be an Annual Exhibition each year, and that once a year we shall receive a copy of the Proceedings and Transactions of the Society; without a thought as to who does all this for our benefit. Occasionally there is a passing grumble if we consider that we should have received our annual publication earlier in the year.

As you know we have no paid Officials to do all this work for us, and we are indebted to a team of conscientious, hard-working Officers who arrange these things on our behalf in their leisure hours. As President, I have been priviledged to watch the work being done, and I can assure you that the Society is indeed fortunate in having our present team of Officers.

First there is our Hon. Treasurer, Mr. J. L. Henderson, who has served the Society so well in this capacity since 1945. To collect our subscriptions is an arduous task—some subscriptions take a very long time to arrive, whilst occasionally a subscription does not arrive at all. This means that our Treasurer has to keep the matter before him for several years, in the hope that by perseverance, he will be able to coax the defaulting member into fulfilling his obligation. In passing, may I remind you of the great help that those Members render to the Treasurer who pay their subscriptions by Bankers Orders. Having collected the subscriptions, he has the difficult task of meeting our requirements without letting us become overdrawn, and at the same time striving to finance larger and better Proceedings and Transactions, as each year arrives; all in the face of ever rising costs.

The editing of our Proceedings and Transactions, as well as the negotiations in regard to their publication, is indeed a heavy task, and we are lucky to have as our Hon. Editor Mr. F. D. Buck who has already served the Society in other capacities, with Mr. Howard as his Assistant Editor. Our publications in the past have done much to build up the reputation of our Society, and it is clear that our present Editors will at least maintain our high standard.

One of the services rendered by our Society, which many of our members appreciate more than anything else, is the availability of well arranged reference collections of their particular Order. I can truthfully describe our collections as being worthy of our Society—in most Orders there are but a few of the indigenous species that are not represented. Thanks to the generosity of members, past and present, we are continually adding to and improving these collections. I say "we" referring to the Society as a whole, but of course "we" do not do the work entailed in incorporating such acquisitions into our collections. That is done by our very hard-working curator, Mr. A. E. Gardner, F.R.E.S., who arrives at each meeting with a few more cabinet drawers which he has reorganized since our previous meeting. We are indebted to Mr. R. D. Weal for carrying out the duties of Hon. Assistant Curator.

When we think of our collections of insects, our thoughts naturally turn to our Library, which consists of a valuable collection of reference works, all of which are available to our members. The responsibility for looking after these, issuing them to Members, and seeing that they are returned in due course, rests on the shoulders of our Hon. Librarian. A post which is well and truly filled by Mr T. R. Eagles, who was for so many years our Hon. Editor, and prior to that our Hon. Treasurer. He is assisted by Dr. B. P. Moore, F.R.E.S., who will presently be taking my place.

Our excellent programme of indoor meetings during last year was arranged by one of our Hon. Assistant Secretaries, Mr T. G. Howarth, B.E.M., F.R.E.S. It will be recalled that we had the pleasure of hearing talks by several speakers who do not belong to our Society. These include "An introduction to the Honeybee's World" with a film and some slides by Dr. Colin Butler, F.R.E.S., the discoverer of the existence of Queen Substance; and a most interesting commentary on some coloured slides by Dr. E. C. Zimmerman, F.R.E.S., which he exhibited on behalf of Mr. E. S. Ross, Curator of Insects at the California Academy of Sciences. These slides, which are of outstanding merit, showed insects in their natural habitats in the valley of the Upper Amazon. We also had a most interesting evening when The Rev C. E. Tottenham, F.R.E.S., spoke on "Unsolved Problems in the Beetle World".

Amongst our members who also contributed to the interest and enjoyment of our indoor meetings were Mr. C. F. Rivers, F.R.E.S., who spoke to us on "Advances in Insect Virus Research"; Dr. T. R. E. Southwood, F.R.E.S., on "The Zoogeography of British Heteroptera"; Dr. B. J. McNulty on "Lepidoptera of Nigeria"; The Baron de Worms, F.R.E.S., on "Wainscots"; Mr. H. C. Huggins, F.R.E.S., on "A Naturalist in the Burren", and many others.

Those of us who have been able to attend our field meetings will remember that they have included visits to such varied habitats as mixed woodlands, heaths, salt marshes, shingle beaches and chalk downlands, and we must thank our other Assistant Secretary, Mr. S. Wakely, for making the necessary arrangements, as well as the gentlemen who were good enough to lead these meetings.

Many of our indoor meetings have been made of greater interest by the showing of slides and films. This has been in the hands of our Lanternist, Mr. L. Christie, who has made it his business to learn for us the handling of the various projectors that have been used.

Now I must refer to Mr. F. T. Vallins, F.R.E.S., our Hon. Secretary, who has done so much for the Society during the last five years—time only permits me to mention a very few of the responsibilities of this industrious Officer. Incidentally, one of these is to help the President and to look after him when he is in difficulties. Therefore I must express my sincere personal thanks to him for having made my term of Office so pleasant. He is, of course, the mainspring of our organisation, and the cheerful way in which he has undertaken his duties has been an inspiration to all of us who have had the pleasure of working with him—it is with deep regret that we have heard that owing to pressure of business he has to give up his appointment. We are, however, extremely fortunate in obtaining the services of Mr. Barry Goater, B.Sc., F.R.E.S., to carry on the work and tradition of our Hon. Secretaries of the past.

I cannot end this tribute to the Officials of our Society without mentioning the Ordinary Members of Council, who have regularly attended meetings throughout the year and given the Society the benefit of their advice on the management of its affairs.

I would now like to refer to the Council's Report. You have heard that our membership at the end of last year was over five hundred and I think that you will agree that it records another satisfactory year, although we must be on our guard at all times against becoming complacent, however successful the Society may be. We should always strive to achieve more, and I hope that every member will do all that he can to recruit new members during the coming year. You will recall that last year the bye-laws were amended so that an Ordinary Member, under the age of twenty-one at the beginning of any year, now pays a reduced subscription of 10/-. This step was taken in the hope of attracting a larger number of young members to our ranks

This Report refers to our first completed year at these Headquarters, and it is pleasing to hear that the average attendance at our indoor meetings has risen and that it is still rising. This is undoubtedly the result of the facilities for studying our Collections and for referring to our

Library, that we can now offer to those members who can visit these premises.

You have also heard that the Council has decided to discontinue our Annual Dinner for the time being. The attendance at this function, which was revived in 1916 after a lapse of 51 years, has recently been steadily declining. In 1950 it reached 130 while this year the total number of those present dropped to forty-six, of which only twenty-six were members of our Society. This is doubtless a reflection of present day conditions, and it is to be hoped that before long a greater interest in this gathering will become manifest, and that it may be found possible to re-introduce this event of which so many of us have such pleasant memories.

It is now my sad duty to refer to those members of whose death we have heard since our last Annual Meeting. Their loss has already been recorded at meetings during the year when the assembled company stood for a few seconds as a token of respect.

Dr. Edward Alfred Cockayne, O.B.E., D.M., F.R.C.P., F.R.E.S., Consulting Physician to the Middlesex Hospital and to the Great Ormond Street Hospital for Sick Children, passed away on the 28th November. Although he was a most distinguished Doctor of Medicine, he was probably better known to us for his entomological activities, and for his connection in recent years with the National Collection at Tring Museum. Here he was occupied in amalgamating his own collection with the pick of the collections already in possession of that Museum, to form the finest and most complete collection of British Macrolepidoptera ever assembled. He was President of the Royal Entomological Society of London in 1943 and 1944. He joined our Society in 1915 and was our President in 1927-28 and again in 1940. Ten years later he was appointed a Special Life Member of the Society. Dr. Cockayne has very generously left to the Society the sum of £1,000 and a selection of his books.

Mr A. R. Davidson, a lepidopterist and coleopterist, of Formby, Lancashire, was only known to a few of us here as the result of his residence in the North of England. He died on 31st October last.

Mr. S. P. Doudney of Purley, Surrey, was a lepidopterist who joined our Society just over twenty years ago.

Although Mr. F. T. Gilliatt, B.A., passed away in September 1955 we did not hear this sad news until last year. He was a resident of Folkestone and was interested in the Lepidoptera. He joined our Society in 1930.

Dr. Harold King, who joined our Society in 1933, died on 20th February last at the age of sixty-eight, leaving a wife and son. He was a Commander of the Order of the British Empire and a Fellow of the Royal Society for twenty-three years. His obituary notice in "Nature" refers to the constant pleasure that he derived from his collection and from his study of British moths. He was also interested in Ornithology.

He was a member of the scientific staff of the Medical Research Council, where for many years he was the Secretary to the Chemotherapy Committee, and during the war he was also Secretary to the Committee for Penicillin Synthesis. In 1941 he was awarded the Hanbury Medal of the Pharmaceutical Society.

Mr. B. B. Snell, who joined our Society in 1938, lived in Bromborough, Cheshire, and his interests lay in the Lepidoptera. He died on the 25th January of last year.

Mr. J. Antony Thompson, M.A., lived in Wells in Somerset. He was interested in Lepidoptera and in Genetics. He was responsible for the discovery of a local race of *Plebejus argus* L. on the North coast of Caernarvonshire, which he named *caernensis*. He joined the Society in 1931.

Mr. H. O. Wells of East Ewell, Surrey, who died on Christmas Day, was an enthusiastic collector of British Rhopalocera and their varieties. He has generously left his cabinets and collection, which include the collection of his brother, the late Mr. Clifford Wells, to our Society, which he joined in 1911.

An Appreciation of the Contribution Made by Amateurs of the Past to the Knowledge of the British Lepidoptera.

We now come to that part of my Address which should be a discourse on some scientific subject but I greatly regret that I am not able to talk to you in the learned terms to which you are accustomed on such an occasion as this.

I am therefore going to take the opportunity of drawing your attention to the great contribution that has been made to the scientific knowledge of Lepidoptera, with special reference to the British Lepidoptera, by persons who have spent their off duty hours in the field and in their work rooms studying the distribution, variation and ecology of our butterflies and moths, together with their genetics and parasites. It is true to say that our present day knowledge has been built up almost entirely by the untiring energy of these workers, spurred on solely by their interest in their subject, and the papers that they have in consequence been able to publish. Even as late as 1653, Izaak Walton (1593-1682), an ironmonger by profession, when referring to caterpillars in *The Complete Angler*, quotes the opinion then still prevailing, of Caius Plinius Secundus of Verona, who was killed by an eruption of Vesuvius in A.D.79, "that many caterpillars have their birth or being from a dew, that in the spring falls upon the leaves of trees . . . . all which kind of dews being thickened and condensed, are by the sun's generative heat most of them hatched, and in three days made living creatures". Incidentally, I do not think that it would be out of place to mention that Mendel himself, that is to say Father Gregor Johann Mendel, who lived from 1832 to 1884 and whose name will be associated with genetical research as long as it is continued, was Abbot of the Augustinian Monastery at Altbrunn in Austria. As the rules relating to heredity discovered by Mendel apply to plants, animals and insects alike, breeders of Lepidoptera in captivity must be acquainted with these rules, if they are going to achieve their desired results.

The profession of entomologist is a recent development amongst the careers open to men and women and, even now, owing to the fact that the vast majority of species are of no economic importance, it is seldom necessary for the programme of the Professionals to include the study of Lepidoptera in the field. Nevertheless, I must emphasise that there can be no amateur student of this Order who is not thoroughly appreciative of the willingness of his professional colleague to come to his aid with his laboratory and Museum experience and knowledge, whenever this is sought.

Occasionally one hears of workers being referred to as "amateurs" or "collectors" in a disparaging sense. I think it is fitting that we should pause a while to consider the efforts of these men and women. Our Society has, for the last three quarters of a century, taken a leading part in bringing such people together and in teaching and assisting those interested in the Lepidoptera by its indoor and outdoor meetings, by making its extensive collections available for study, by putting its large library at the disposal of members and by the publication of its Proceedings and Transactions.

At this point it is not inappropriate to remember how much our way of life in this Country owes to the formation and development of voluntary Societies such as ours representing groups of enthusiasts linked by the sharing of a common interest.

The enthusiasts I shall be mentioning appreciated the significance of the fact that, by adding to the general fund of knowledge, they were contributing to the advancement of the science which meant so much to them.

These enthusiasts to whom I am referring (I cannot think of a better description) have added to the knowledge of the Lepidoptera by forming collections which are to be found in the National Museums, the University Museums and the Provincial Museums throughout the country, by publishing data relating to their life history and ecology, and by keeping exhaustive records from which the distribution of species can be ascertained.

If we read the entomological literature of the past we see our present knowledge of the Order being built up by the publication of the work done by amateur lepidopterists--if we look at the publications of to-day we see that the enthusiasts are still working as hard as their predecessors. If we cast our eyes along the reference books required by both school children and scientific workers, we find that many, if not the majority, have been written by men who have devoted their spare time to the study of Lepidoptera.

When we consider the contributions to Museums which have been made by amateur collectors our thoughts turn first to the vast national collection in the British Museum (Natural History). This has grown from the collection of insects purchased by the Government from Sir Hans Sloane in 1753, although it was not until 1759 that the Museum was opened to the public; and up to 1808 all visitors to the Museum had to be in possession of a ticket for which application had to be lodged at least two days previously. In 1815 the whole of the insects were exhibited in two cases in Montague House and since that time the collection has been steadily increasing. Amongst the enormous number of contributions made by our enthusiasts is a drawer containing a large proportion of the species described in *Lepidoptera Britannica* (1803) by Adrian Haworth (1767-1833). These are chiefly Noctuidae, Geometridae and Microlepidoptera, amounting to some 125 species.

In 1826 the private collection of British and Foreign insects formed by the Curator, Dr. William Elford Leach (1790-1836) was presented to the Museum, and in 1844 a collection of 6,735 insects of all Orders, including many types, was presented by the Entomological Club. The entire British collection including Microlepidoptera formed by James Francis Stephens (1792-1879) was acquired in 1853 from Mrs. Stephens. This collection consisted of some 90,000 specimens and contained the types of species described by Stephens in his work *Illustrations of British Entomology* 1828-35 and 1846 together with types described by other authors. In 1859 the Zoological Society of London presented a collection of British insects from the Wilkins Collection, including types described by Kirby, Spence and others, and in 1863 the Linnean Society of London presented the collection of insects formed by Sir Joseph Banks (1743-1820). This consisted of over four thousand specimens including numerous types described by Johann Christian Fabricius (circa 1745-1810), a Professor of Kiel University who had been a pupil of Karl Linné (1707-1778), the originator of binominal nomenclature, when he was a Professor at Upsala University.

In 1889 W. Clifton presented a collection of British Insects, consisting of Coleoptera, Diptera, etc., as well as Lepidoptera, including many of the specimens figured or mentioned in *British Entomology*, 1823-40, written and illustrated by John Curtis. Another of the earlier collections to be acquired was the collection formed by William Buckler (1814-1884) which was presented by Robert Newbury in 1889. This collection consisted chiefly of specimens bred when preparing notes for his work on the larvae of British Lepidoptera, which I shall be mentioning presently. The collection of Lepidoptera formed by Henry Stainton, a Fellow of the Royal Society, consisting of over 33,000 specimens, together with his entomological correspondence and a series of drawings of larvae of Microlepidoptera, were presented to the Museum by his widow in 1893. Mr. Stainton was one of the leading entomological authors of his time, his best known work being *Natural History of the Tineina*, which was published between 1855 and 1873. In 1855 he established *The Entomologist's Annual* which he published for twenty years. The collection of William Purdey (1844-1922), a locksmith of the South Eastern Railway and a resident of Folkestone, was presented to Lord Rothschild's Museum at Tring and is now, in consequence, incorporated in the National Collection.

In 1863 the Linnean Society of London presented their British Lepidoptera (except the collection of Linné himself) to the Museum.

This collection contained contributions from many well known entomologists of the period.

When Francis Whittle (1854-1921) died he left his extensive collection of Lepidoptera, which was particularly strong in Microlepidoptera to the Museum. Although he amassed a vast knowledge of Lepidoptera his professional life was spent in a Joint Stock Bank.

One of the greatest benefactors to entomological science of all times was undoubtedly the second Lord Rothschild (1868-1937) whose name will always be familiar to entomologists on account of the private Museum at Tring which he founded and managed throughout his life. This Museum in which British Lepidoptera were well represented passed to the British Museum (Natural History) on the founder's death and now houses a large part of the national collection. Lord Rothschild was himself a leading authority on certain groups of world Lepidoptera. The collection of Eustace Bankes (1861-1929) was transferred from his home at Corfe Castle to the British Museum (Natural History) in 1912 for safe custody and was presented to the Museum together with his notebooks and diaries in 1928. This collection of Lepidoptera consisted of some 93,000 specimens of which some 60,000 were Microlepidoptera. Our President for 1916-1917, Mr. Henry J. Turner (1856-1950), a schoolmaster who edited *The Entomologist's Record* for forty years, left all his types to the Museum. A very fine collection of British Lepidoptera which was also left to the Museum was that of Robert Adkin (1849-1935). Although he had been in the tobacco trade all his adult life (first he was a partner in the firm of tobacco manufacturers Adkin Brothers, and then from 1901 until the time of his death he was a member of the board of the Imperial Tobacco Company) he made time to become an authority on British Macrolepidoptera. He was a resident of Eastbourne and compiled the local list which is so well known to many of us here to-night. Mr. Adkin took a particular interest in the many Societies to which he belonged, especially our own which he joined in 1882 and of which he was President on five occasions—a record which is likely to remain unbroken.

In the public gallery of the British Museum we find the Walsingham Collection of British Lepidoptera and their larvae. This gallery is visited by a large number of school children at their most impressionable age and collections such as this play their part in arousing the interest of the students of the future. This exhibit is only a portion of the very extensive collection formed by the sixth Lord Walsingham, who died in 1919. He presented a large part of the remainder of his collection, including his collection of Microlepidoptera on which he was a leading authority, to the Museum in 1910, together with his Library and entomological Papers. Some of the duplicates of his Macrolepidoptera are now in the Castle Museum in Norwich, while some of the duplicates of his Microlepidoptera are in the United States National Museum in Washington, D.C. Much of this collection was the result of Lord Walsingham's own work in the field. He was a leading authority on the Microlepidoptera and the student of that part of the Order has much for which to thank him.

From these few examples it will be seen that thanks to the activities of amateur collectors, the National Collection is constantly receiving additions. In spite of this the collection can never be complete—new forms and new species are continually appearing in Britain. The change in the list of our indigenous species during the time that collectors have been active is in itself a subject of considerable scientific interest, and the keeping of the collection up to date is to a great extent still dependent upon the work of amateur collectors.

If we consider some of the other Museums we find there is a similar basic reliance on the collections formed by our enthusiasts.

The collection of George Flemming (1856-1927) is in the National Museum of Wales in Cardiff. In this case the enthusiast was a schoolmaster who was not only a keen lepidopterist but also a learned botanist. His first collection of butterflies and moths was destroyed by fire but he set to and formed a second collection, chiefly from Glamorgan, which is the collection to which I have just referred. The collection of Arthur Griffiths (1867-1934), a solicitor of Brighton is in the same Museum.

One of the collections in the National Museum in Dublin is that of British and Irish Lepidoptera formed by William F. de V. Kane (1840-1918), a gentleman of leisure who devoted his time to the study of natural history in general and Lepidoptera in particular. He was responsible for various publications including *European Butterflies* (1885) and *A Catalogue of the Lepidoptera of Ireland* which appeared in *The Entomologist* between 1893 and 1901 before being published as a separate work in 1902.

Among the collections in the Hope Museum of Oxford University are those of Arthur Chitty (1859-1908), a general entomologist who was by profession a barrister, and of Professor Edwin Waters (1890-1928) which included six volumes of mounted leaf mines. The Professor was Professor of Romance Languages at the University and as a hobby he studied the somewhat neglected Microlepidoptera. Another interesting early collection in this Museum is that of C. W. Dale (1851-1906).

The collection of Edward Godwin (1867-1934), a hop grower, who made a study of the Hop Aphis is in the Maidstone Museum; that of Alfred Thurnall (1858-1929), a draughtsman of the Great Eastern Railway Company, who specialized in the Tortricidae is in the Essex Museum of Natural History in Stratford, East London, where also is the collection of British Lepidoptera formed by Arthur Mera (1849-1930). That of F. Parfitt (1820-1892) is in the Exeter Museum, and that of the Rev. James Tarbat (*circa* 1864-1937), a parish priest first of Reading, then of Weybridge, and finally for 27 years of Fareham, is in the Zoological Museum at Cambridge.

In the Tolsen Memorial Museum of Huddersfield we find the collection of a native of that City, George T. Porritt, whose professional life was spent in the wool trade. Nevertheless, he had an excellent knowledge of various Orders including Lepidoptera, especially in connection with the Yorkshire Moors. He wrote *A List of the Yorkshire Lepidoptera* which was completed in 1886 and of which a second edition was published in 1904. He was on the editorial staff of the *Entomologist's Monthly Magazine* for twenty-three years and was a member of our Society for the last forty years of his life.

If we visit the Hancock Museum in Newcastle-upon-Tyne we find the Coleoptera and Lepidoptera of John Gardner (1841-1921), a native of Teesdale who spent most of his life in West Hartlepool. His collecting was carried out chiefly in his own district at Blackhalls and Greatham Marshes. He was the Editor of the *Catalogue of the Lepidoptera of Northumberland and Durham* in succession to John Robson (1833-1907) of Hartlepool, until the time of his death.

Although an active business man, James Jenner (1849-1924) was a general field naturalist who was particularly interested in the Macrolepidoptera. In 1885-86 the Eastbourne Natural History Society published his *List of the Macro-Lepidoptera of East Sussex* and his collection is to be found in the Lewes Museum. He was a Member of our Society for the last thirty-eight years of his life.

We find George Carter Bignell, who died in 1910, presented his entomological collection to the Municipal Museum at Plymouth. The donor had at first been in the Royal Marines and on retirement with the rank of Barrack-Master-Sergeant he became the Registrar of Births and Deaths, Poor Law Officer and Vaccination Officer for the Stonehouse District of Plymouth.

Our President for 1877, J. Platt Barrett (1838-1916), a resident of Peckham, where he used to entertain entomological friends, spent over fifty years teaching deaf and dumb children. He was a student of the Lepidoptera and his collection is now in Horniman's Museum at Forest Hill.

Nor while we are considering a few of the collections distributed throughout the Country should we overlook the collections, which we ourselves have in these rooms, in which most British species of all Orders of Insecta are available for study, together with representative collections of Palearctic and exotic insects. These collections are the work of enthusiasts who have bequeathed them to our Society in order that the knowledge gained from their labours may be accessible to all of us. In particular I must mention the Bright Collection of British Lycaenidae formed by Mr P. M. Bright, who joined our Society in 1909 and remained a member until the time of his death in 1941 as the result of a road accident. This collection which is known to every student of this variable group of butterflies formed the basis of the Monograph of *Lysandra coridon* Poda which was published in 1938 by Mr. Bright and Mr. H. A. Leeds. We also have the collection formed by Mr. Leeds of aberrations of *Maniola jurtina* L., *M. tithonus* L. and *Coenonympha pamphilus* L. It is to be noted that both these two collectors were amateurs. This year we have received the collection of British Moths made by Dr. Harold King, of Bangor University, which was presented to us by Mrs. King acting as his executrix.

I have referred to a representative selection of collections which have been given, or bequeathed to, or acquired by, Museums or other centres of study. It will be appreciated, however, that in a number of cases collections are sold at auction, in the absence of special instructions, by executors with the result that all the specimens of interest are incorporated in other collections and so in time they probably find their way to Museums where they can be referred to by anyone making a serious study of the group.

If we consult the libraries we find that many, if not the majority of the reference books on British Lepidoptera were written by men who studied natural history in their off duty hours although the necessary knowledge of our insects can only be acquired by long and detailed study of their ecology in the field—it cannot be learned only in the classroom or the laboratory.

One of the fathers of British entomology was Edward Newman, who was born at the beginning of the nineteenth century. Yet if we consider his professional career we find that on leaving school in 1817 at the age of sixteen, he went to Godalming to which town his father had moved on retirement from business in London. His father, however, decided to start business again in Godalming as a wool-stapler and Newman worked with him there for ten years. Incidentally, the profession of wool-stapler is one that is not often mentioned in present times and I could not help thinking of Newman when a few weeks ago a photograph appeared in *The Field* of a churchyard at Westwell, in the Cotswolds, with a note to the effect that it contained an interesting collection of wool-stapler's tombs which are all surmounted with plain or carved representations of a wool-sack. In 1826 Newman moved to Deptford where he worked in a rope business until 1837 and in 1840 he acquired an interest as a partner in a firm of printers, shortly after which he became sole proprietor of the business which he managed until 1870, when he went into retirement until his death in 1876.

It was against this background that Newman worked and went on working on his studies of natural history. He started as a child by taking a keen interest in all natural objects in which he was encouraged by his parents. We find that such was the urge of natural history with Newman that he became a leading authority of his time on certain branches of his subject, as well as following a business career. While he was at Godalming in 1831, that is to say at the age of thirty, he published his first paper in *The Magazine of Natural History* under the title of *Polyommatus Argiolus*, *Melitaea Euphrosyne* and *Selene*. In the following year *The Entomological Magazine* was born under the auspices of the Entomological Club whose members did not anticipate that the venture would make a profit but merely hoped that it would promote the science in which they were so greatly interested. Amongst the list of members of the club at that time were to be found such well known names in entomology as John Curtis and Edward Doubleday. These gentlemen selected Edward Newman as the first editor of their magazine to which he also became one of the most prolific contributors. He not only wrote under his own name but also under the pseudonyms *Corderius Secundus*, *E.N.D.*, and *Rusticus*. It was in 1832 that Newman started his series of writings under the title of *The Letters of Rusticus* which appeared in the *Magazine of Natural History*, *The Entomological Magazine* and *Chambers Journal*. These Letters covered mammals and birds as well as insects and at the time of their publication they aroused a great deal of interest. In the same year he produced his first publication, a fifty-six page pamphlet headed *Sphinx vespiformis* and in the following year he took a leading part in the establishment of the Entomological Society of London, which became The Royal Entomological Society of London in 1933.

When *The Entomologist* was started in 1840 Newman became the editor, which position he held until the end of 1842 when the magazine was discontinued for nearly twenty years. The parts published during this period formed Volume I of our present series.

The year after the temporary cessation of publication of *The Entomologist* Newman founded *The Zoologist*, which he continued to supervise until the time of his death 33 years later, and in 1858 he became the Natural History Editor of *The Field*, which responsibility he also continued to bear until the end of his life.

In 1866 he turned his attention to the completion of *Illustrated Natural History of British Moths*, of which he had written five numbers at an earlier date. The completed work appeared in 1869, upon which he immediately commenced the companion work *An Illustrated Natural History of British Butterflies*, which was published in 1871. These two volumes were for many years two of the chief reference works used by the students of British Macrolepidoptera and his name is probably known to all of us here more on account of these books than on account of his many other entomological activities.

The Rev. F. O. Morris (1810-1893) was a classical scholar of Worcester College, Oxford and subsequently the Vicar of Newburnholme in Yorkshire, where, without neglecting his Parish duties, he managed to add in no small way to the popular literature on birds, butterflies, moths and general natural history.

His best known works included *British Butterflies*, which was first published in 1853, of which there were ten editions, and *British Moths* in four volumes, which first appeared between 1859 and 1870, of which there were five editions.

I think that most of us know *Larvae of the British Butterflies and Moths* by Buckler, which was published in nine volumes by the Ray Society between the years 1885 and 1899. Probably few of us, however, know that William Buckler (1815-1884) was by profession an artist who specialized in portrait painting, although he was interested in entomology for much of his life. He took over the responsibility for the illustrations in Stainton's *Natural History of the Tineina* in 1857 and continued producing the coloured drawings for some three years. It was in 1858 that he began, as an amusement, to figure the larvae of our Lepidoptera and to record the details of their life history, which in many cases were then still unknown. During this period he was in close touch with the Rev. John Hellins of Exeter—both these enthusiasts spent their spare time breeding butterflies and moths and then comparing their conclusions. When Buckler died he left behind him over 6,000 coloured figures with notes, ranging from the Rhopalocera to the Pyrales and Plumes together with a few of the remaining Microlepidoptera.

Those of us who are interested in Microlepidoptera are probably familiar with that little book *British Pyralides* with plates that are usually coloured, and which was published by John Henry Leech in 1886. After this the author turned his attention to the entomology of Japan, Korea and the lesser known parts of the Himalayas together with Central and Western China. He published many papers on this subject up to the time of his death. His chief work was *Butterflies from China, Japan and Korea*, in three volumes, with coloured plates which he produced in 1892-1894. Although his name as an entomologist and coleopterist is well known to many of us, he died in 1901 at the early age of thirty-eight. He was educated at Eton and Cambridge, and while he was at college he lost his left hand as the result of a gun accident. This, however, did not deter him from being a very active field worker.

The Lepidoptera of the British Islands published between the years 1893 and 1907 is still one of the most comprehensive reference works on British Lepidoptera, although it does not include the Tineina. It consists of eleven volumes and the illustrated edition has 504 coloured plates with figures drawn by E. C. Knight. The eleventh volume was produced after the author's death in 1904 from notes which he left behind him. This great work was written by Charles G. Barrett, who was for much of his life a Customs and Excise Officer. He was also a regular contributor to the entomological magazines of his time, his best known contribution being his "Notes on British Tortrices" which appeared from 1872 to 1890 in the *Entomologist's Monthly Magazine*, of which he was a member of the editorial staff. He was a member of our Society from 1889 until the time of his death and was our President in 1892.

James William Tutt (1858-1911), who was a resident of Westcombe Hill, died when he was only fifty-three. He was a schoolmaster by profession, having been headmaster of the following London schools: Snowfields Board School, Webb Street School, the Higher Grade School at Portman Place and, for a few months, Morpeth Street Central School.

The time at my disposal does not permit me to do more than mention quite superficially a small part of his entomological activities. During his short but active life he managed to find time to add considerably to the knowledge of British and European Lepidoptera. He began submitting notes to the *Entomologist* in 1884 at the age of twenty-six, and in 1890 the *Entomologist's Record and Journal of Variation* was launched under his editorship. He continued not only to edit this magazine until he died, but he was always a prolific contributor to its pages on such varied aspects of entomology as melanism, migration, practical hints, British Pterophorina, British Noctuae, etc.

During the same period he wrote, amongst other books, *British Butterflies* (1896) and *British Moths* (1896), also he began his monumental work *British Lepidoptera*, completing nine volumes; of these, four refer to Butterflies and five to Moths. These volumes deal with their subject more comprehensively than anything that had been published at the time—it was a great loss to entomology that he did not live to complete his work.

He was a member of our Society from 1886 until he died and was our President in 1899. He was also President of the City of London Society from 1896 to 1899 and at the time of his death he was President-Nominate of the Entomological Society of London.

I do not doubt that many of us, at one time or another, when confronted by a larva of an unknown species of Macrolepidoptera, have referred to *Larvae of the British Lepidoptera*, published in 1880, which is one of the few books with larvae depicted in colour. This was written by a barrister, Owen S. Wilson, who was also a Lieutenant Colonel in the Volunteers. All the figures for the forty plates were drawn from life by the author's wife, Mrs. (Eleanor) Wilson.

The name of South (1846-1932) in connection with Butterflies and Moths has become a household word. It was in 1906 that Richard South first published his *Butterflies of the British Isles*, and his two volumes *Moths of the British Isles* first appeared in 1907 and 1908. These three little books of the Wayside and Woodland series are familiar to us all—they are to be found in homes, in schools and in technical libraries, and they are consulted by children and scientists alike. Since their first appearance there have been two further editions both of which have been reprinted several times. The production of these books was, however, only one of his many entomological activities. Although he did not need to have a professional career he can be said to have devoted a most arduous life to the study of butterflies and moths. His interest in Lepidoptera covered both Macro and Microlepidoptera of this country, as well as foreign lands. The Tortricidae of his collection are now in the British Museum, whilst the rest of his collection has been presented to the City of Birmingham by Mr. Bethune Baker. Not only was he a regular contributor to the *Entomologist*, but he was also the editor of that paper for thirty-four years from 1890. He was a member of our Society from 1882 to 1932 and was our President in both 1885 and 1896.

One of the most striking figures amongst our enthusiasts was Edward Meyrick (1854-1938). He was educated at Marlborough College, where he was a classical scholar, and from 1877 to 1886 he was a schoolmaster in Australia and New Zealand, after which he returned to England and became an assistant master at his old school until he retired in 1914.

He was an intensely hard working student of the Lepidoptera and, in particular, of the Microlepidoptera. While he was abroad he published a great number of papers on the lepidopterous fauna of Australasia, India, South Africa and even South America. He is, however, probably best known to us here as the result of his publication in 1895 of *A Handbook of British Lepidoptera*, of which he produced a revised and enlarged version in 1927. This Revised Handbook, which is based on taxonomic characters, can almost be described as a necessity for all students of British Microlepidoptera—it is, however, now out of print and seldom appears in the second-hand market.

It has been said that Meyrick must have described no less than 20,000 species of Lepidoptera. In 1904 he was elected a Fellow of the Royal Society and for the last twelve years of his life he was President of the East Wiltshire Conservative Association. The collection which he amassed is now in the British Museum (Natural History).

One of the keenest collectors of British Butterflies of his time was Ernest C. Joy (1869-1940), who was a member of the Baltic Exchange until he retired in 1922. He once told me that more than fifty years previously he had decided to form a complete collection of British Butterflies and from that time he had devoted his annual holiday every year to the collection and study of one new species. His collection, which is now in the Folkestone Museum, is a wonderful achievement if one bears in mind that he had caught or bred every insect which he acquired.

A lepidopterist with a wide range of interests was William G. Sheldon (1859-1944). His contributions to entomological knowledge included notes, papers and monographs on subjects varying from British Macrolepidoptera and British Tortricidae to continental Rhopalocera. Amongst places little known to British workers he visited Spain, Hungary, Swedish Jemtland and Lapland, Odalen, Finmark, the most Northern province of Norway, and South Russia. He bred and described the early stages of species such as *Colias hecla* Lej., *Brenthis frigga* Thnbg., *Chrysophanus amphidamus* Esp. (now known as *helle* D. & S.), *Colias nastes* Bsd. and *Erebia embla* Thunb.

We here, however, are probably most indebted to him for his research into the life histories of so many of the British Tortricidae which he carried out between 1914 and 1941, during which period the fruits of his labours appeared regularly in the *Entomologist*.

He became interested in raising funds for the upkeep of Wicken Fen and he formed a committee for the protection of British insects with the approval of the Royal Entomological Society of London, of which for ten years he was the very successful Honorary Treasurer.

He was educated at Derby School and most of his professional career was spent with the building and contracting firm, Messrs John Greenwood, of which he was a director for many years.

I have mentioned just a few of the enthusiasts who are no longer with us and I have mentioned just a very few of the contributions that they have made to scientific knowledge. These workers all had in common the fact that their professions lay in other directions, and that they were spurred on in their self-imposed tasks by their interest in their particular line of natural history.

If, however, we turn to the present generation, we still find men and women who have professions far removed from the study of natural history, who are, nevertheless, making time to carry on the work which was started by the early collectors and writers. Species new to this country are being recorded and their ecology under our conditions is being worked out, knowledge of the distribution of species is being perfected and the changes in distribution which are taking place are being noted. Contributions to the periodicals are making the knowledge gained by these workers available for all in the future.

If the enthusiasts of the present day were to cease work, the flow of information on the changes which are taking place in the make up of our lepidopterous fauna, and the details of the composition and extent of the waves of migrating insects which arrive at our shores, and where they move on to, would be reduced to a mere trickle.

In conclusion, let me say the collections of insects which are now being formed by amateurs exploring from an entomological point of view, the lesser known parts of the country, will, in due course, form the basis of the study of our Lepidoptera by future generations.

I hope that this glimpse of the workers of the past, recruited from the Armed Services, the Church, the Learned Professions, Teachers, Business-men, in fact, from almost every walk in life, will in some small way encourage the workers of the present and future generations to lead the way in the search for knowledge as did their predecessors.

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FIELD MEETINGS, 1956.

OXSHOTT, SURREY—7th March 1956.

Leader, Mr. T. R. Eagles.

The day was sunless and cold, but dry.

Imagines of the following moths were seen:—*Ectropis bistortata* Goeze (several including one very dark specimen and one strongly banded), *Archiearis parthenias* L., *Achlya flavicornis* L., *Semioscopis avellanella* Hb., *Diurnea* (*Chimabache*) *fagella* F. and *Acleris* (*Peronia*) *ferrugana* Schiff. & Denis.

Many of the logs suitable for the larvae of *Parascotia fuliginaria* L. had been burned and the sites of the fires were covered by a luxuriant growth of the moss *Funaria hygrometrica* Hedw. What logs there were yielded no larvae.

The fungus *Daldinia concentrica* (Bolton ex Fr.) Ces. & de Nat. was abundant and gathered in the hope of rearing the moth *Euzophera* (*Myelois*) *neophanes* Durr. No doubt also the beetle *Biphyllus lunatus* (F.) will appear and possibly *Synchita humeralis* (F.).

Galls were found on the sallows—some thought to be caused by the clearwing moth *Aegeria flaviventris* Staud. and others by *Laspeyresia servillana* Dup., both species bred later.

Larvae of the moths *Argyresthia goedartella* L. and *Cedestis farinatella* Dup. were noted.

One of the beech trees was seen to be heavily infested with the Beech Coccus, *Cryptococcus fagi* (Baeren).

On Oxshott Heath beating pine produced *Trioza albiventris* (Foer.) and *Aphalara calthae* L. (Homoptera) and *Exochomus quadripunctatus* L., *Coccinella septempunctata* L. and *Myrrha octodecimguttata* L. (Coleoptera).

On Esher Common the coleopteron *Cytilus sericeus* (Forst.) was common in moss on stumps. On or amongst the fungus *Polystictus versicolor* Fr. on the stumps occurred *Aradus depressus* (F.) (Heteroptera) and larvae of *Endomychus coccineus* (L.) (Coleoptera) which were in abundance.

Single specimens of the beetles *Litargus connexus* (Geoff.) (in *Daldinia concentrica*) and *Leistus spinibarbis* (F.) were observed. Other beetles noted were *Proteinus ovalis* Steph., *Epuraea unicolor* (Ol.) and *Cyphon padi* (L.) at birch sap and *Dorytomus taeniatus* F. under bark.

The Jointed Rush, *Juncus articulatus* L., was searched for the case-bearing larvae of *Coleophora caespititiella* Zell., not to be confused with the much commoner larvae of *Coleophora alticolella* Zell. found everywhere on *Juncus effusus* L.

In the small ponds there was a strong growth of *Eleogiton fluitans* (L.) Link.

No Spring migrant birds were seen or heard. The Green Woodpecker was calling all day, and the drumming of the Greater Spotted Woodpecker was heard. The Little Grebe was on the Black Pond, and the Meadow Pipit was both seen and heard.

BOXHILL—14th April 1956.

Leader, Mr. F. Rumsey.

After three days drizzle, with a dull, wet weather forecast and a cold day, five members had the courage to attend. The stepping stones route was flooded, so instead the party proceeded via Headly Lane to Juniper Valley, still hoping for the sunshine, but cold drizzle persisted. Nothing at all was noted on the wing, but the following larvae were reported:—*Eilema deplana* Esp. and *Cleora rhomboidaria* Schiff. (*gemmaria* Brahm) on yew (*Taxas baccata* L.), *Laspeyria flexula* Schiff. on hawthorn (*Crataegus*), *Lozopera dilucidana* Steph. in parsnip stems (*Pastinaca sativa* L.), *Metzneria carlinella* Staint. on *Carlina vulgaria* L., *Coleophora laricella* Hb. on larch shoots (*Larix decidua* Mill.) and *Aristotelia bifractella* Dougl. in *Inula* tops. The fungus *Polyporus brumalis* Fr. was noted.

SHEEPLEAS, E. HORSLEY—22nd April 1956.

Leader, Mr. F. M. Struthers.

A party of seven met at Horsley Station. The weather was cloudy and cool at first, but brightened considerably by noon.

Cowslips, primroses and violets were all in full bloom and the Cuckoo was heard by most members for the first time this year. *Gonepteryx rhamni* L., *Aglais urticae* L. and *Nymphalis io* L. were on the wing.

Searching tree trunks produced imagines of *Selenia bilunaria* Esp., *Lycia hirtaria* Clerck, *Biston strataria* Hufn. and *Ectropis bistortata* Goeze. Larvae of *Talaeporia pseudobombycella* Hb. were abundant on beech trunks, and spruce cones were collected for *Laspeyresia strobilella* L.

Anybia epilobiella Roem., a local species, was seen in numbers on the pine trunks together with another micro which was either *Mompha nodicolella* Fuchs or *M. subbistrigella* Haw.

Amongst the Coleoptera taken were *Anisosticta novemdecimpunctata* (L.) found in the stem of *Alisma plantago-aquatica* L. *Necrophorus humator* (Goeze) and *Endomychus coccineus* L.

After an enjoyable day tea was taken at the Thatchers.

STANFORD-LE-HOPE, ESSEX—28th April 1956.

Leader, Mr. R. D. Weal.

About half-a-dozen members attended this meeting, and although it was a sunny day a rather cold wind was blowing. The same route was taken as in previous years and tea was again taken at "Crossways". The following insects were taken or noted:—

Lepidoptera: The imagines of *Aglais urticae* L. and *Nymphalis io* L. were both seen on the wing, while a solitary adult specimen of *Depressaria alstroemeriana* Clerck was found; *Conium maculatum* L., the foodplant of this species, is common at this spot. Larvae were reported of *Maniola jurtina* L., *Philudoria potatoria* L., *Arctia caja* L., *A. villica* L., *Amathes xanthographa* Schiff., *Phlogophora meticulosa* L., *Plusia chrysitis* L., *Anania nubilalis* Hb. in the stems of *Artemesia vulgaris* L., *Phalonia affinitana* Dougl. in *Aster tripolium* L., *Lozopera beatricella* Wals. in *Conium maculatum* L. *Ballota nigra* L. produced two species; *Coleophora lineola* Haw. in abundance on the leaves, while at the base of the stems the fiddle-shaped larval cases of *Nemotois fasciella* F. were found, in one case in plenty. Leaves of *Aster tripolium* L. were marked by the leaf-mining larvae of *Bucculatrix maritima* Staint. and the white cocoons of those which had spun up were to be seen in numbers both on the plant itself and on the surrounding grass stems.

Coleoptera: *Badister bipustulatus* (F.), *Dicheirotrichus gustavi* Crotch, *Harpalus rubripes* (Dufts.), *H. tardus* (Panz.), *Amara apricaria* (Payk.), *Bembidion lunulatum* (Fourc.), *B. minimum* (F.), *Dromius melanocephalus* Dej., *Aleochara tristis* Gr., *Drusilla canaliculata* (F.), *Tachinus marginellus* (F.), *Conosomus lividus* (Er.), *Tachyporus chrysomelinus* (L.), *T. hypnorum* (F.), *Philonthus umbratilis* (Gr.), *Rugilus orbiculatus* (Payk.), *Stenus claricornis* (Scop.), *Omalium excavatum* Steph., *O. caesum* Gr., *Phosphuga atrata* (L.), *Catops nigricans* Spence, *Olibrus aeneus* (F.), *Subcoccinella vigintiquattuorpunctata* (L.), *Corticaria crenulata* (Gyll.), *Agriotes sputator* (L.), *Limonius minutus* (L.), *Chrysolina banksi* (F.) adults and larvae at the roots of *Ballota nigra* L., *Phaedon tumidulus* (Germ.), *Podagrica fuscipes* (F.), *Ceuthorhynchus contractus* (Marsh.), *C. hirtulus* Germ., and *C. turbatus* Schulz.

A species of Water Crowfoot which was quite abundant in one of the ditches was eventually determined by Mr. T. R. Eagles as *Ranunculus trichophyllus* Chaix.

Birds seen or heard during the day included the Cuckoo, Swallow, Reed Bunting, Sedge Warbler and Redshank, and a very fine, large Adder was also seen by several members.

BENFLEET, ESSEX—5th May 1956.

Leaders, Messrs. H. C. Huggins and W. J. Watts.

This was a joint meeting with the South Essex Natural History Society. Ten members of the South London Society attended and there must have been more than that number in the South Essex Society contingent. A few coleopterists visited Canvey Island and the following is a list of the beetles noted: *Hygrotus parallelogrammus* (Ahr.), *Rantus pulverosus* (Steph.), *R. frontalis* (Marsh.), *Dytiscus circumflexus* F., *Gyrinus caspius* Mén., *Hydrobius fuscipes* (L.), *Enochrus quadripunctatus* (Herbst) var. *halophilus* (Bedel), *Berosus spinosus* (von Steven), *B. signaticollis* (Charp.), *B. affinis* Brulle, *Bagous tempestivus* (Herbst), and *B. cylindrus* (Payk.).

The main party was transported in cars by willing helpers to the vicinity of Bowers Giffard Church, where the journey was continued on foot to a large rubbish dump at Bowers Marsh. Larvae taken on the way included *Euproctis chrysorrhoea* L. and *Trichiura crataegi* L. (on blackthorn—very small), *Lozopera beatricella* Wals. (in stems of *Conium maculatum* L.), *Phalonia roseana* Haw. and *Endothenia gentianana* Hb. (common in seedheads of *Dipsacus fullonum* L.). In the dykes on the marsh the local water beetle *Dytiscus circumflexus* F. was often seen and several pairs were scooped out with the aid of butterfly nets. On reaching the outskirts of the extensive dump it was decided to have lunch. This spot is noted for the numbers of rare and alien plants that occur here, including *Artemisia absinthium* L., *Tragopogon porrifolius* L., *Datura stramonium* L., *Salsola pestifera* A. Nels. and many others. Birds noted included: Wild Duck, Shelduck, Reed Bunting, Green Woodpecker, etc.; while the nest of a Carrion Crow with eggs was found in some bushes and estimated to be only about eight feet from the ground. Butterflies reported included, *Aglais urticae* L., *Nymphalis io* L., and *Euchloë cardamines* L.

Several lepidopterists decided to leave the main party and look for the larvae of *Thetidia (Euchloris) smaragdaria* F. This species suffered severely in the Canvey Island floods of a few years ago, so a car being available, it was decided that the banks of the River Crouch would be the best place to search. Accordingly Creeksea was visited where about twenty larvae of the Essex Emerald were found on *Artemisia maritima* L. Other species taken here included larvae of *Aristotelia brizella* Treits. in matted seedheads of *Limonium vulgare* Mill. Moths of this species were subsequently bred in numbers from a few bunches of seedheads collected, and one member reported breeding out a few *Goniodoma limoniella* Staint. from flower stems of the same plant. Larvae of *Phthorimaea obsoletella* F.R. were also taken in last year's stems of *Atriplex littoralis* L.

At about five o'clock all the party met for tea at the Homedia Café, Benfleet. Hearing that several specimens of the rare moth *Heterographis oblitella* Zell. had been taken on the rubbish dump, several members returned there in the evening and found this species more easily disturbed at that time of the day, about fifty being netted. The finding of this species obviously breeding here in numbers was undoubtedly one of the outstanding entomological discoveries of the year. Hitherto less than a dozen specimens of the moth had been recorded for Britain

COSFORD MILL, SURREY. 13th May 1956.

Standing (*left to right*) : F. T. Vallins (*leader*), E. E. J. Trundell, Mrs. Fairclough, A. W. Gould, E. Gowing-Scopes, H. J. Brush, ———, Mr. Loarridge (*host*), W. H. A. Harris, L. H. C. Chevalier, Dr. B. P. Moore, L. C. Nissen, F. D. Buck, Dr. J. L. Newton, A. E. Gardner, C. H. Hards. *Seated* (*left to right*) : Mrs. Trundell, Miss Ashby, Miss McDermott, Mrs. Sperring, Mrs. Loarridge (*hostess*), F. Rumsey, The two girls and a boy are the son and daughter of Mr. and Mrs. Loarridge and a friend.)

CHIDDINGFOLD, SURREY. 29th July 1956.

At the rear (*left to right*) : Sir Leonard Wakely, Lt.-Col. W. B. L. Manley, E. E. J. Trundell, Robin Mere (*leader and host*), C. J. Rawlings; centre (*left to right*) : Mrs. Manley, Mrs. Mere (*hostess*), D. W. Thorpe-Young, Mrs. Jacobs, Mrs. Trundell, Miss Ashby, F. Rumsey, Wing-Comdr. C. H. Schofield; *in front* (*left to right*) : S. N. A. Jacobs, F. M. Struthers, A. W. Gould.

during the last century. Many other specimens were taken by others who visited the locality during the following weeks.

Although the party broke up into several sections, this was certainly one of the most exciting fixtures of the season.

COSFORD MILL, THURSLEY, SURREY—13th May 1956.

Leader, Mr. F. T. VALLINS.

Mr. and Mrs Loarridge once more very kindly invited members of the Society to spend a day at this most attractive collecting ground. Twenty-seven members and friends attended, some going direct to the Mill, the remainder gathering at Milford Station to be picked up by car. The day was warm and sunny, and many butterflies were on the wing, although the only species worthy of mention were *Polygonia c-album* L. and *Leptidea sinapis* L. A few moths were found on tree trunks or were flushed from the herbage. These included *Anticlea (Coenotephria) derivata* Schiff., *Lampropteryx suffumata* Schiff., *Xanthorhoë designata* Hufn., *Bapta temerata* Schiff., *Anthophila fabriciana* L., *Ancylis lundana* F., *Eucosma pflugiana* Haw., *Depressaria arenella* Schiff., *Lithocolletis faginella* Zell., *Adela viridella* Scop., *Nemophora swammerdamella* L. and *Micropterix calthella* L.

Lepidopterous larvae found were *Dryobotodes protea* Schiff., *Geometra (Hipparchus) papilionaria* L., on birch, *Cnephasia incertana* Treits., on yarrow *(Achillea millefolium* L.), *Mompha conturbatella* Hb., on Rosebay willow-herb, *Depressaria angelicella* Hb., on *Angelica sylvestris* L. and *Leucoptera spartifoliella* Hb. cocoons were plentiful on stems of broom (*Sarrothamnus scoparius* (L.) Wimmer).

Coleoptera were reported as follows: *Leistus spinibarbis* (F.) one under a stone, *Notiophilus rufipes* Curt., *Elaphrus cupreus* Dufts. and *E. riparius* (L.) on mud, *Bembidion lampros* (Herbst), *B. articulatum* (Panz.), *Badister sodalis* (Dufts.), *Harpalus rubripes* (Dufts.) under a stone, *H. rufitarsis* (Dufts.), *Bradycellus harpalinus* (Serv.), *Anisodactylus nemorivagus* (Dufts.), *Amara ovata* (F.) under stones, *A. familiaris* (Dufts.) under stones, *Pterostichus* (*Feronia*) *strenuus* (Panz.) at roots of plants on mud, *P.* (*F.*) *diligens* Sturm., *Agonum viduum* (Panz.), *Hydroporus* (*Graptodytes*) *flavipes* (Ol.), *Coelostoma orbiculare* (F.) at roots of plants on mud, *Cercyon haemorrhoidalis* (F.), *Anacaena globulus* (Payk.) swept, *A. limbata* (F.), *Eusphalerum minutum* (F.) sweeping, *Philorinum sordidum* (Steph.) sweeping, *Lesteva longoelytrata* (Goeze) in and on moss at Waterfall, *Stenus clavicornis* (Scop.), *S. canaliculatus* Gyll., *S. cicindeloides* (Schall.), *S. nitidiusculus* Steph., *Dianous coerulescens* (Gyll.) in and on moss by waterfall, *Lathrobium geminum* Kraatz, *Philonthus laminatus* (Cz.), *P. varius* (Gyll.) in cow dung, *P. varians* (Payk.) ab. *unicolor* (Steph.) in cow dung, *P. cognatus* Steph. in cow dung, *Gabrius pennatus* Sharp, *Quedius molochinus* (Gr.), *Q. picipes* (Man.), *Tachinus signatus* Gr. (*rufipes* (Deg.)), *Limonius* *minutus* (L.), *Agriotes acuminatus* (Steph.), *A. pallidulus* (Ill.), *A. obscurus* (L.) sweeping, *Microcara testacea* (L.) sweeping, *Cytilus sericeus* (Forst.), *Kateretes pedicularius* (L.) sweeping, *K. bipustulatus* (Payk.) sweeping, *Meligethes atratus* (Ol.), *Lathridius lardarius* (Deg.) a single example swept, *Cerylon histeroides* (F.) *Pyrochroa coccinea* (L.), *Anaspis frontalis* (L.) sweeping, *Chrysolina staphylaea* (L.), *Gastrophysa polygoni* (L.), *Phaedon armoraciae* (L.) sweeping, *P. tumidulus* (Germ.), *Hydrothassa marginella* (L.), *Phyllotreta tetrastigma* (Com.) fairly common on *Cardamine amara* L., *Cassida viridis* L., *C. rubiginosa* Muel., *C. nobilis* L., *Bruchus atomarius* (L.), *Bruchidius unicolor* (Ol.) sweeping, *Apion fuscirostre* (F.) sweeping, *A. aethiops* Herbst, *Miccotrogus picirostris* (F.) sweeping, *Liosoma deflexum* (Panz.) sweeping, *Cidnorhinus quadrimaculatus* (L.), *Ceuthorhynchus pollinarius* (Forst.) sweeping, *C. assimilis* (Payk.) sweeping, *C. constrictus* (Marsh.) sweeping, *C. quadridens* (Panz.) sweeping, *C. erysimi* (F.) sweeping, *C. contractus* (Marsh.) sweeping, *Cionus alauda* (Herbst), *Hylastes ater* (Payk.).

Orthoptera: *Tetrix subulata* (L.) and *T. vittata* (Zett.).

A delightful tea, generously provided by Mrs. Loarridge, terminated what is undoubtedly proving to be one of the most pleasant and popular meetings. The Society is most grateful for the hospitality extended to its members on these occasions, and the interest shown in their activities.

BUXTED, SUSSEX—20th May 1956.

Leader, Mr. D. A. ODD.

Thirteen members met to enjoy a warm and interesting day in this unspoilt part of E. Sussex. Many Orders were seen and a number of specimens were taken for identification.

Microlepidoptera taken by Mr. S. Wakely were as follows: Imagines —*Syndemis musculana* Hb. (*Tortrix musculana* Hb.), *Mompha schrankella* Hb., *Nemophora metaxella* Hb., *Micropterix sepella* F. and *M. calthella*. Larvae—*Eana incanana* Steph. (*Cnephasia incanana* Steph.), common in the spun flowers of Bluebell, but was heavily parasitized; also *Mompha schrankella* Hb., several were spun up at the edges of leaves of Willowherb (*Chamaenerion angustifolium* (L.) Scop.).

The Macrolepidoptera which follow were reported by Mr. C. L. Nissen: Imagines—*Pararge aegeria* L., *Argynnis euphrosyne* L., *Euchloë cardamines* L., *Anaitis plagiata* L., *Cabera pusaria* L., *Lithina chlorosata* Scop., and *Bapta temerata* Schiff. Larvae—*Archiearis parthenias* L., *Erannis defoliaria* Clerck and *Biston strataria* Hufn.

At the end of the day a pleasant tea, prepared by Mrs. Odd, was enjoyed with thanks by all present.

CHOBHAM COMMON, SURREY—27th May 1956.

Leader, Mr. R. F. Bretherton.

Fourteen members and friends met at Woking station or joined the party at the clump on top of Chobham Common. The day was brilliant, but a strong north-easterly wind made collecting difficult. The first objective was a deep bog where (and apparently nowhere else in Britain) the North American plant *Kalmia glauca* Ait. has been established since at least 1910. The attractive pink blossoms were mostly over, but enough remained to serve as subjects for satisfactory photographs. After eating sandwiches nearby, the party worked across the Common to Gracious Pond. This has, in fact, ceased to be a pond for many years and is now a marshy and tangled wood which is rich in ferns, including the Royal Fern (*Osmunda regalis* L.), though only one member of the party succeeded in finding it.

Lepidoptera found on the Common included imagines of *Gonepteryx rhamni* L., *Coenonympha pamphilus* L., *Callophrys rubi* L., *Macrothylacia rubi* L., *Anarta myrtilli* L., *Chlorissa viridata* L., *Semiothisa liturata* Clerk, *Ematurga atomaria* L., *Dyscia fagaria* Thunb., *Dioryctria fusca* Haw., and *Eucosma tetraquetrana* Haw. Ova of *M. rubi* and larvae of *Dasychira fascelina* L. and *Amathes castanea* Esp. were found on the heather, and larvae of *Poecilocampa populi* L. and *Evetria buoliana* Schiff. at Gracious Pond. One member spotted the hairy, cryptic larva of *Trichoptilus paludum* Zell. on a plant of Sundew, and others were found after much grovelling in the bog; several imagines were bred from these about 25th June. Among the Coleoptera seen were *Pterostichus* (*Feronia*) *cupreus* (L.), *Agonum sexpunctatum* (L.), *Chilocorus bipustulatus* (L.).

Mrs. Bretherton entertained the party to tea at Ottershaw Cottage, and afterwards botanists and entomologists combined in an attack on the beetle *Lilioceris lilii* (Scop.), which was infesting the Leader's lilies.

HORSLEY, SURREY—2nd June 1956.

Leader, Mr. D. W. Thorpe-Young.

The weather was fair for this meeting, with some sunshine. About a dozen made up the party which met at Horsley Station and proceeded to the Sheepleas via the track by the railway and through a small wood to the main Guildford Road. One of the first captures was *Panemeria tenebrata* Scop., taken by the edge of the small wood. Just before reaching the main road a small pond by a farm was visited, and here a number of the local *Bactra furfurana* Haw. were netted on being disturbed from clumps of *Eleocharis palustris* (L.) R.Br. There were few insects on the wing on the Sheepleas, but a specimen of *Eucosma rheediana* Haw. was reported. Several cockroaches were seen, and identified as *Ectobius lapponicus* (L.). Various larvae were reported, including: *Philereme vetulata* Schiff. (a few in spun leaves of *Rhamnus cartharticus* L.); *Euzophera suavella* Zinck. (not uncommon on low plants of hawthorn); *Walshia rhamniella* Zell. (in spun terminal shoots of *Rhamnus cartharticus* L.); *Mompha nodicolella* Fuchs (numerous in galls on stems of Rosebay); *M. miscella* Schiff. (a few in leaves of *Helianthemum chamaecistus* Mill.); *Depressaria applana* F. (very common in spun leaves of *Anthriscus sylvestris* (L.) Bern.; *D. albipunctella* Hb. (one or two found with the *D. applana*). Other insects reported were the Hemipteron *Coreus marginatus* (L.) and the beetle *Phyllopertha horticola* (L.).

The party gradually worked their way over to the Shere road, and were grateful to those members with cars who conveyed them about a mile back to the Thatchers at Horsley, where tea was enjoyed by all previous to the return home.

BOOKHAM COMMON—9th June 1956.

Leader, Mr. F. D. Buck.

This meeting was not one of our successes. It followed two extremely wet days, and dawned with leaden sky and a forecast that gave little comfort to the three enthusiasts who accompanied the leader onto the Common. Our first act was to cancel the tea arrangements and then to make a cursory examination of our sodden venue.

Fresh examples of the Gelechiid *Depressaria alstroemeriana* Clerck were observed on the way to the ponds where a single example of the Orthopteron *Tetrix subulata* (L.) was taken. A walk through the woods flushed a number of Lepidoptera which included *Eilema sororcula* Hufn., *Dysstroma truncata* Hufn., *Aethalina punctulata* Schiff. and a Geometrid. The identity of the last, in the opinion of the three companions of the leader, who boxed the beast, was three different species. Also in the wood was noticed the Earthnut (*Conopodium majus* (Gonau) Lor. & Barr.).

Back again at the ponds a freshly emerged example of *Procris statices* L. was taken. Coleoptera yielded nothing more exciting than *Stomis pumicatus* (Panz.), *Malachius bipustulatus* (L.) and *Prasocuris phellandrii* (L.). A single example of the Field Cockroach (*Ectobius lapponicus* (L.)) was also taken. However, our micro-lepidopterist who never seems to fail, took a number of larvae.

Shortly after lunch, there being no sign of the sun, the party gracefully acknowledging the mastery of the weather, abandoned the meeting.

Lepidoptera seen or taken but not recorded above were:—Imagines. *Cosymbia punctaria* L., *Bapta temerata* Schiff., *Phalonia smeathmanniana* F., *Eucosoma tripunctana* F. and *E. pflugiana* Haw. Larvae. *Aegeria flaviventris* Staud. one gall on sallow, *Platyptilia pallidactyla* Haw. plentiful in spun shoots of *Achillea ptarmica* L., *Theria rupicapraria* Schiff. on blackthorn (*Prunus spinosa* L.), *Depressaria* *angelicella* Hb. plentiful on *Angelica sylvestris* L., *Coleophora genistae* Stt. on *Genista anglica* L., *C. troglodytella* Dup. on *Pulicaria dysenterica* (L.) Born. and *Achillea millefolium* L. and *Ypsolophus caudellus* L. one small larva on spindle (*Euonymus europaeus* L.).

There was also taken the Sawfly *Tenthredo temula* Scop.

HAM STREET, KENT—19th June 1956.

Leader, Dr. E. Scott.

This meeting was marred by the very wet weather—it rained continuously from before 9 a.m. till evening. In spite of this misfortune, a number of interesting insects and plants were recorded. Some of the London members who met at Charing Cross decided to return home as the outlook was so unpromising, but five decided to make the journey by train, and were joined at Ham Street by others, bringing the numbers up to over a dozen. There were enough cars present to convey the party to Orlestone Woods, a locality in which many entomological rarities have been taken in recent years.

It was hopeless to expect to see insects on the wing, but a number of species were taken at rest on herbage and tree-trunks. Larvae were also to be had by searching, those recorded being *Tethea or* Schiff., *Lymantria monacha* L., *Orthosia miniosa* Schiff., *O. stabilis* Schiff., *Euzophera consociella* Hb. (on oak), *Platyptilia calodactyla* Hb. (one pupa taken in root of Golden-rod, *Solidago virgaurea* L.), *Oidaematophorus tephradactylus* Treits. and *Eucosma quadrana* Hb. (both on Golden-rod, the latter quite common), *Anacampsis populella* Clerck (on aspen), and *Psammotis crocealis* Hb. and *Coleophora troglodytella* Dup. (on *Pulicaria* (*Inula*) *dysenterica* (L.) Bernh.).

Thanks are due to Mr. Ashton who owns the shooting rights and gave us permission to collect in these woods, and who personally provided us at lunch-time with hot coffee and a glass of wine as well as helping with his car to convey those present to and from the station.

Interesting plants seen included *Aquilegia vulgaris* L., *Osmunda regalis* L. (Royal Fern), and a local sedge, *Carex curta* Good. An unusual tree growing in the woods was pointed out, namely the Swamp Cypress.

The following is a list of the Lepidoptera reported: *Argynnis selene* Schiff., *Coenonympha pamphilus* L., *Polyommatus icarus* Rott., *Pyrgus malvae* L., *Bena fagana* F. (*prasinana* auct nec L.), *Spilosoma lubricipeda* L., *Herminia barbalis* Clerck, *Cosymbia albipunctata* Hufn., *Electrophaës corylata* Thunb., *Dysstroma truncata* Hufn., *Colostygia pectinataria* Knoch, *Asthena albulata* Hufn., *Euphyia luctuata* Schiff., *Eulype hastata* L., *Eupithecia lariciata* Frey., *Lomaspilis marginata* L., *Cabera pusaria* L., *Semiothisa notata* L., *Pseudopanthera macularia* L., *Pseudoboarmia punctinalis* Scop., *Ectropis bistortata* Goeze, *E. extersaria* Hb., *Anania funebris* Stroem., *Microstega pandalis* Hb., *Crambus pascuellus* L., *C. pratellus* L., *Stenoptilia bipunctidactyla* Scop., *Platyptilia calodactyla* Hb., *Ancylis laetana* F., *Argyroploce arcuella* Clerck, *A. lacunana* Dup., *Eucosma bilunana* Haw., *E. latiorana* H.-S., *Lathronympha hypericana* Hb., *Oecophora geoffrella* L., *Tischeria complanella* Hb., *Tinea parasitella* Hb. and *Nemotois degeerella* L.

A pleasant tea was had at the Duke's Head, near the station.

HORSELL COMMON—24th June 1956.

Leader, Baron de Worms.

The small party of eight members and friends who assembled at Woking Station were welcomed by a warm, but somewhat cloudy day interspersed with a good many glimmers of sunshine. Unfortunately a recent fire had ravaged much of the Common where it was intended to work. However, enough was left to harbour a good many interesting insects. By far the commonest species among the larger moths was the Geometer *Perconia strigillaria* Hb. which was flushed every few yards. A few *Ematurga atomaria* L. were still about, and an occasional *Diacrisia sannio* L. was also disturbed from the heather. Very few butterflies were seen, only a few Pierids, mostly *Pieris napi* L. It was among the Microlepidoptera that the day was richest. Chief among these was the minute Plume *Trichoptilus paludum* Zell. which was flying in numbers in the afternoon about its foodplant, the Sundew (*Drosera rotundifolia* L.). On pine trunks *Eudoria truncicolella* Staint. was seen, while a number of *Crambus uliginosellus* Zell. were obtained from heather, together with *Dioryctria fusca* Haw. Larvae of *Euzophera consociella* Hb. were found on oak in spun leaves which also showed the conspicuous blotches of *Acrocercops brongniardella* F. Small borings of the clearwing *Aegeria culiciformis* L. were also located in birch stumps. A very pleasant and quite profitable day ended with a welcome tea at the Wheatsheaf Hotel in Horsell.

UPPER HALLING, KENT—1st July 1956.

Leaders, Messrs. C. H. Hards and A. W. Gould.

Five members and five visitors met at Halling Station and walked up to the dense woodland capping the chalk downs above Upper Halling. At first the weather was warm and fine between showers, but by mid-day the clouds gathered and heavy rain fell. Conditions got steadily worse and at four o'clock it was agreed that the meeting should be terminated.

During most of the day the Lepidopterists found that beating for larvae was impossible, but the following species were taken or noted:

Larvae: *Euchloë cardamines* L., *Lasiocampa quercus* L., *Brachionycha sphinx* Hufn., *Cucullia verbasci* L. and *Conistra vaccinii* L.

Imagines: *Maniola jurtina* L., *Aglais urticae* L., *Euphyia rubidata* Schiff., *Mesoleuca albicillata* L., *Melanthia procellata* Schiff. and *Epirrhoë rivata* Hb.

The Coleopterists were not quite so hampered by the weather, and the following species were taken:—

Notiophilus biguttatus (F.), *Harpalus subpunctatus* Steph. (*seladon* Schau.), *Synuchus nivalis* (Panz.), *Cantharis rufa* L., *Dascillus cervinus* L., *Brachypterolus vestitus* Kies., *Mordellistena brevicauda* Boh., *Grammoptera ruficornis* F., *Cryptocephalus hypochaeridis* L., *C. labiatus* L., *C. pusillus* F., *Bruchidius fasciatus* Ol., *Deporaus mannerheimi* Hum., *Apion difforme* Ahr., *Phyllobius virideaeris* Laich, *Barypithes araneiformis* Schrank, *Curculio* (*Balanobius*) *pyrrhoceras* Marsh., *Cionus scrophulariae* L. and *Cleopus pulchellus* Herbst.

The party was fortunate in having a botanist present who was able to add greatly to the interest of the day by pointing out and identifying the plants peculiar to the locality, among which were:—

Verbascum lychnitis L. (White Mullein), *Echium vulgare* L. (Viper's Bugloss), *Reseda luteola* L. (Dyer's Rocket), *Helianthemum chamaecistus* Mill (Common Rockrose), *Sherardia arvensis* L. (Field Madder), *Asperula cynanchica* L. (Sqinancy Wort), *Blackstonia perfoliata* (L.) Huds. (Yellow-wort), *Chaenorrhinum minus* (L.) Lange (Small Toadflax), *Linum catharticum* L. (Purging Flax), *Daphne laureola* L. (Spurge Laurel), *Viola hirta* L. (Hairy Violet), *Viola reichenbachia* Jord ex Bor. (Pale Wood Violet) and *Campanula trachelium* L. (Nettle-leaved Bellflower, also known as Bats-in-the-Belfry).

The possibilities of the area were discussed and it was agreed that the variety of habitats—downland slopes, extensive dense woodlands with a large clearing, and weed-covered chalk workings of recent date—should provide a rich and interesting fauna, well worth further visits.

FOLKESTONE, KENT—8th July 1956.

Leaders, Messrs. D. G. Marsh and G. H. Youden.

Owing to adverse weather conditions prevailing on the morning, and the consequent sparse attendance, the leaders decided to abandon this meeting.

BALCOMBE, SUSSEX—15th July 1956.

Leader, Mr. A. S. Wheeler.

The unsettled weather no doubt accounted for the poor attendance. One member met the leader at the station. Although no rain fell during the visit, conditions were far from satisfactory in the morning due to saturated undergrowth and no sun. By afternoon there was some improvement with occasional glimpses of sunshine.

From the lepidopterist's point of view an interesting local species is *Nymphalis polychloros* L. and there are also many interesting woodland species. On this occasion, however, only a few common butterflies were on the wing.

A list of observations follows:—

Imagines: *Maniola jurtina* L., *Aphantopus hyperantus* L., *Aglais urticae* L., *Polyommatus icarus* Rott., *Thecla quercus* L., *Pieris rapae* L., *P. napi* L., *Thymelicus sylvestris* Poda, *Ochlodes venata* Br. & Grey, *Calothysanis amata* L., *Xanthorhoë montanata* Borkh., *Colostygia pectinataria* Knoch, *Euphyia bilineata* L., *Mesoleuca albicillata* L., *Hydriomena furcata* Thunb., *Cabera pusaria* L., *C. exanthemata* Scop., *Pseudoboarmia (Boarmia) punctinalis* Scop., *Hapalia olivalis* Schiff., *Psammotis crocealis* Hb., *Crambus culmellus* L., *Isotrias trifasciana* Don. (*rectifasciana* Haw.), *Argyroploce lacunana* Dup., *Metzneria lapella* L. Larvae: *Aglais urticae* L. (2nd brood), *Nymphalis io* L., *Gortyna flavago* Schiff. in Burdock (*Arctium* sp.).

BOXHILL—22nd July 1956.

Leader, Mr. A. E. GARDNER.

Fourteen members and visitors attended. Although overcast in the morning the weather later improved and members enjoyed a sunny afternoon's collecting. The party worked the banks of the River Mole, the dragonflies *Agrion splendens* (Harris) and *Platycnemis pennipes* (Pall.) being noted. Crossing the stepping stones the party ascended the south face where lunch was taken.

Later Juniper Valley was worked mainly for Coleoptera and several specimens of *Licinus depressus* (Payk.) and *Chrysolina violacea* (Müll.) were taken by the Leader. *Cryptocephalus hypochaeridis* (L.) was abundant and the larvae of *Pilemostoma fastuosa* (Schall.) was found on *Inula*.

Few Lepidoptera were on the wing. A freshly emerged male *Gonepteryx rhamni* L. was found with its empty pupa-case; pupation had taken place on herbage a few inches above ground, and no Buckthorn could be found nearby. One larva of *Callophrys rubi* L. was found on Dogwood.

The following Lepidoptera were taken or observed:—*Hydriomena furcata* Thunb., *Aspitates gilvaria* Schiff., *Pyrausta nigrata* Scop., *Rhodaria purpuralis* L., *R. aurata* Schiff., *Microstega hyalinalis* Hb., *Psammotis crocealis* Hb., *Evergestis straminalis* Hb., *Synaphe angustalis* Schiff., *Pempelia dilutella* Hb., *Phycita semirubella* Scop., *Stenoptilia zophodactyla* Dup., *Marasmarcha lunaedactyla* Haw., *Oxyptilus parvidactylus* Haw., *Alucita baliodactylus* Zell., *Phalonia tesserana* Treits., *Phtheocroa rugosana* Hb., *Thiotricha subocellea* Steph., *Mompha raschkiella* Zell. (larva on Rosebay), *M. nodicolella* Fuchs. (a few empty galls on Rosebay), *Gracillaria semifascia* Haw. (larval cones very common on Maple, but all empty).

Tea was taken at the 'Stepping Stones' tea rooms.

CHIDDINGFOLD—29th July 1956.

Leader, Mr. R. M. MERE.

Owing to extremely bad weather conditions on the morning of this meeting it was regretfully decided to abandon it.

CHILWORTH, SURREY—4th August 1956.

Leader, Mr. S. WAKELY.

With a cloudy day and an unpromising weather forecast it was not expected that many would attend this fixture and the leader was gratified to find two cars waiting for the party at Chilworth Station, the full party numbering seven. Black Heath was first visited, and by lunch time the following species were recorded: *Eumenis semele* L., *Plebejus argus* L., *Eupithecia goossensiata* Mab., *Euxanthis angustana* Hb., *Argyrotaenia pulchellana* Haw. (*Eulia politana* Haw.), *Eucosma solandriana* L., *Aristotelia ericinella* Dup. (swarming on the heather), and a few unidentified micros. A number of edible fungi were found and several of the party collected a supply to take home.

After lunch the party were transported by car to the hill on which St. Martha's Church stands. On the way up the long sandy slope to the summit on foot a number of *Crambus inquinatellus* Schiff. and a few *C. culmellus* L. were netted, but no specimens of *C. contaminellus* Hb. were disturbed. This latter species is known to occur here, but it is seldom that one can disturb it during the day. One member visited the locality after dark and took it fairly plentifully. A specimen of *Hemimene petiverella* L. was taken among Yarrow (*Achillea millefolium* L.).

Since lunch the weather had improved, and from the top of the hill the grand view was enjoyed in brilliant sunshine. An unusual sight here was numbers of the local chafer *Euchlora dubia* (Scop.) var. *aenea* (Deg.). In some places they were in heaps on the ground—six or eight scrambling over each other with a pair *in cop.* at the base of the struggling heap. Numbers were also flying over the sand, occasionally settling for a time. On the return down the long slope back to the cars two Notodontid larvae were found on tree trunks, namely *Notodonta anceps* Goeze and *Lophopteryx capucina* L. A good tea was provided for the party at Lockners Guest House not far from the station.

The following wild flowers of interest were reported: Hare's-foot Clover (*Trifolium arvense* L.), Common Storksbill (*Erodium cicutarium* agg.), Bird's-foot (*Ornithopus perpusillus* L.), Sand-spurrey (*Spergularia rubra* (L.) J. & C. Presl), White Climbing Fumitory (*Corydalis claviculata* (L.) DC.) abundant, Common Dodder (*Cuscuta epithymum* (L.) Murr.), Harebell (*Campanula rotundifolia* L.) abundant, Slender Cudweed (*Filago minima* Sm. Pers), Annual Knawel (*Scleranthus annuus* L.).

Fungi noted included: *Boletus versipellis* Fr. abundant, *B. scaber* Bull., *B. edulis* Fr., *B. luteus* Fr., *B. chrysenteron* (Bull.) Fr., *B. reticulatus* Boud., *B. badius* Fr., *B. felleus* Fr., *Amanita rubescens* Fr. which was large and abundant.

EASHING MOORS, SURREY—12th August 1956.

Leader, Dr. B. P. Moore.

The nine members and friends who attended this meeting enjoyed fine weather, but insects were generally scarce. During the morning, attention was confined to the wooded portion of the Wey valley near the outskirts of Godalming, but after lunch the party moved through the water-meadows by the north bank of the river as far as Eashing village. The locality is noteworthy for its varied flora, and the prolonged wet weather had resulted in an exceptionally luxuriant growth for the time of year. The large exotic *Heracleum* species, which the leader found in full bloom earlier in the season, was nearly over, but sufficient remained to give an indication of its size.

Perhaps the most conspicuous insects were the hordes of Diptera which crowded the flower-heads of various Umbelliferae. Butterflies were scarce but a few imagines of *Gonepteryx rhamni* L., *Polygonia c-album* L., *Aglais urticae* L. and *Celastrina argiolus* L. were noted. The only noteworthy beetle was a female *Lucanus cervus* L., picked up from the pavement at the end of the day—a late date for this species.

The following are lists of other species taken or noted.

Lepidoptera—imagines: *Eilema griseola* Hb., *Perizoma alchemillata* L., *Hapalia lutealis* Hb., *Psammotis crocealis* Hb., *Evergestis straminalis* Hb., *Acleris* (*Peronea*) *shepherdana* Steph., *Argyrotoza latifasciana* Haw., *Hemimene petiverella* L.; larvae: *Nonagria typhae* Thunb. (in stems of *Typha latifolia* L.), *Eupithecia valerianata* Hb. (on *Valeriana* sp.), *Hypena rostralis* L. (on *Humulus lupulus* L.), *Depressaria nervosa* Haw. (in stems of *Oenanthe crocata* L.), *Coleophora apicella* Staint. (on seeds of *Stellaria graminea* L.), *Epermenia illigerella* Hb. (on *Angelica sylvestris* L.).

Coleoptera—*Amara aulica* (Panz.), *Pterostichus* (*Feronia*) *diligens* Sturm, *Agonum fuliginosum* (Panz.), *Dromius linearis* (Ol.), *Phosphuga atrata* (L.), *Eusphalerum luteum* Marsh. (*pallidum* Grav.), *Stenus flavipes* Steph., *Tachyporus formosus* Matth., *T. obtusus* (L.), *Gyrophaena gentilis* Er., *Rhagonycha fulva* (Scop.), *Agriotis pallidulus* (Ill.), *Brachypterus urticae* (F.), *Meligethes aeneus* (F.), *Olibrus aeneus* (F.), *O. corticalis* (Panz.), *Stilbus testaceus* (Panz.), *Lathridius nodifer* Westw., *Corticarina gibbosa* Herbst., *C. similata* Gyll., *Cerylon histeroides* (F.), *Coccinella septempunctata* L., *Prophylea quatuordecimpunctata* L., *Anaspis rufilabris* Gyll., *Dorcus parallelipipedus* (L.), *Longitarsus jacobaeae* Waterh., *Crepidodera transversa* (Marsh.), *C. ferruginea* (Scop.), *Chaetocnema concinna* (Marsh.), *Caenorhinus germanicus* Herbst., *Apion ervi* Kirby, *A. craccae* (L.), *Cidnorhinus*

EASHING MOORS, SURREY. 12th August 1956.

Left to right: F. Rumsey, Dr. B. P. Moore (*Leader*), E. E. J. Trundell, F. M. Struthers, D. G. Hall, Mrs. Struthers, Mrs. Trundell, R. W. J. Uffen.

DRUID'S GROVE, SURREY. 6th October 1956.

Left to right (*back row*): C. N. Hawkins, C. L. Nissen, R. Fairclough, T. R. Eagles, Alan Fairclough; (*centre row*): a visitor, Miss Brookes, Miss Fall; (*front row*): a visitor, a visitor, W. J. Finnigan, H. G. Tunstall, W. H. Spreadbury (*leader*).

quadrimaculatus L., *Nanophyes marmoratus* Goeze), *Cionus tuberculosus* (Scop.).

Diptera—*Syritta pipiens* (L.), *Chilomyia* (*Cheilosia*) *impressa* (Loew.), *Chrysogaster solstitialis* (Fal.), *C. chalybeata* Meig., *Syrphella* (*Syrphus*) *tricincta* (Fal.), *S.* (*S.*) *albostriatus* (Fal.), *Syrphidis* (*Syrphus*) *vitripennis* (Meig.), *Epicampocera succincta* (Meig.), *Phyllomya volvulus* (F.).

Plants—*Impatiens capensis* Meer. (*biflora* Walt.), *Filipendula* (*Spiraea*) *ulmaria* (L.), *Eupatorium cannabinum* L., *Petasites hybridus* (L.) (*ovatus* Hill), *Datura stramonium* L., *Galeopsis tetrahit* L

ADDINGTON, SURREY—19th August 1956.

Leader, Mr. E. E. J. Trundell.

A party of eight members and three visitors met in a deluge for this field meeting. The three visitors decided it was too wet to proceed further, but the rest of the party had an early lunch in the two cars. Later conditions slightly improved, so rubber boots, cycle capes, etc., were donned and the slopes bordering Featherbed Lane were worked till teatime.

In spite of the adverse weather conditions, a number of interesting species were reported, mostly micros. These included: *Argynnis aglaia* L., *Hapalia lutealis* Hb., *Crambus geniculeus* Haw., *Alucita baliodactylus* Zell., *Phalonia flaviciliana* Westw., *Acleris* (*Peronea*) *rhombana* Schiff. (*contaminana* Hb.), *Argyroploce rivulana* Scop., *Heminene petiverella* L., *H. acuminatana* Zell., *Laspeyresia rufillana* Westw., *Phthorimaea acuminatella* Sirc., *Depressaria liturella* Schiff., *Coleophora discordella* Zell., and *Nemotois scabiosella* Scop.

A number of larvae were also taken, a list of which follows: *Macrothylacia rubi* L., *Eupithecia haworthiata* Doubl. (in flower-buds of *Clematis vitalba* L.), *Lithocolletis scabiosella* Dougl. (in leaves of *Scabiosa columbaria* L.), *Gracillaria tringipennella* Zell. (in leaves of *Plantago lanceolata* L.), *Phthorimaea acuminatella* Sirc. (in leaves of *Cirsium acaule* (L.) Scop.), and *Coleophora nutantella* Mühl. (on seedheads of *Silene cucubalus* Wibel (*inflata* Sm.)).

It is pleasing to note two very local species still occurring in this locality so near London, namely, *Phalonia flaviciliana* and *Lithocolletis scabiosella*.

A single dipteron was reported, namely, *Physocephala rufipes* (F.).

Tea was taken about 5 o'clock at the Red Knight at the foot of Gravel Hill.

OTFORD—26th August 1956.

Leader, Mr. S. N. A. Jacobs.

Nineteen members and visitors met at Otford Station, but in view of local conditions, proceeded at once to Shoreham, where a limited area to the north of the Eynsford-Otford road near Shoreham Station was worked. The weather was exceedingly kind, for although long belts of thundery rain could be observed to east and west, the party enjoyed sunshine for the greater part of the day, and experienced only one small shower.

The open slopes of the downs were worked in the morning, and in the afternoon the woodland and woodland clearings to the north were tried. Possibly the most pleasing sight was the large number of *Lysandra coridon* Poda in very fresh condition for so late a date. A beetle which is probably a new record for West Kent, *Diplocoelus fagi* Guér. was found, as well as several very local species; and observations and captures were made in many Orders.

After a pleasant if energetic day's collecting, the party was entertained to tea by Lt.-Col. and Mrs. Manley at their house close to the ground worked, and beside the excellent tea, the genial atmosphere created by our hosts brought out much general conversation which was a very fitting end to a most enjoyable day. All members and friends attending will wish their thanks to their hosts to be recorded.

Insects taken or recorded are as under:—

Diptera: *Volucella inanis* (L.). Hemiptera: *Elasmucha grisea* (L.). Orthoptera: *Ectobius panzeri* Steph. Hymenoptera: *Amblyteles palliatorius* (Grav.).

Coleoptera: *Lincinus depressus* (Payk.), *Amischa analis* (Grav.), *Stenus erichsoni* Rye, *Oxytelus sculpturatus* Grav., *Staphylinus pedator* (Grav.), *Agathidium nigripenne* (F.), *Anisotoma humeralis* (F.), *Diplocoelus fagi* Guér., *Phaedon tumidulus* (Germ.); *Longitarsis luridus* (Scop.), *Rhinosimus ruficollis* (L.), *R. planirostris* (F.), *Anaspis pulicaria* Costa, *Hallomenus binotatus* (Quen.), and a larva of *Drilus flavescens* (Geof.).

Lepidoptera: *Pararge aegeria* L., *P. megera* L., *Eumenis semele* L., *Maniola jurtina* L., *Coenonympha pamphilus* L., *Vanessa atalanta* L., *Aglais urticae* L., *Nymphalis io* L., *Lysandra coridon* Poda, *Lycaena phlaeas* L., *Pieris brassicae* L., *P. napi* L., *Thymelicus sylvestris* Poda, *Lophopteryx capucina* L., *Drepana cultraria* F., *Eremobia ochroleuca* Schiff., *Acasis viretata* Hb., *Xanthorhoë designata* Hufn., *Eupithecia* sp., *Euzophera advenella* Zinck., *Pseudargyrotoza conwagana* F., *Tortrix forskåleana* L., *Acleris shepherdana* Steph., *Argyresthia semifusca* Haw., *A. nitidella* F., *Ypsolophus sequellus* Clerck; and larvae of *Sphinx ligustri* L. on *Viburnum lantana* L., *Argyrotoza schalleriana* L., *Ancylis unculana* Haw. (*derasana* Hb.) and *Lithocolletis lantanella* Schrank.

Fungi noted included the following species:—*Hygrophorus puniceus* Fr., *Clitocybe flaccida* (Sow.), *Collybia radicata* (Rehl.) Berk., *Marasmius dryophilus* (Bull.) Karst., *Inocybe fastigiata* (Schaeff.) Fr. and *Galactinia badia* (Pers. ex Fr.) Boud.

BETCHWORTH, SURREY—2nd September 1956.

Leader, Mr. R. F. Haynes.

Following an extremely cool and unseasonable day it was a welcome change to find an improvement in the weather for this meeting. Although the morning remained rather overcast, later a few sunny periods brightened the day.

Leaving the Brockham Lane bus stop, the party of seven members and two visitors proceeded along the Reigate road past the Barley Mow Inn and then, quitting the main road, soon found themselves alongside the railway line, about half a mile west of Betchworth station. Seed heads of *Campanula* were gathered in the hope of breeding imagines of *Eupithecia denotata* Hb. A visit was then paid to a clearing in a small wood to search for plants of a species of white foxglove.

The party then made their way up the steep chalk slopes of Brockham Hill. Some small looper caterpillars, believed to be larvae of *Thera juniperata* L., were beaten out of Junipers. It was noticeable that the Junipers seem gradually to be dying out in this part of Surrey. A few butterflies were noted as follows: *Nymphalis io* L., *Eumenis semele* L., *Polyommatus icarus* Rott., *Lysandra coridon* Poda and a very worn *Hesperia comma* L.

After lunch a light shower of rain lasting about 20 minutes forced people to take cover. Afterwards members sauntered along the footpath leading above a large quarry and gradually made their way back to Brockham Lane. Most of those who attended this meeting were interested in microlepidoptera and the following species were identified by Mr. S. Wakely: *Pyrausta nigrata* Scop., *Acleris* (*Peronea*) *rhombana* Schiff. (*contaminata* Hb.), *A.* (*P.*) *variegana* Schiff., *A.* (*P.*) *sparsana* Schiff. (*sponsana* F.), *A.* (*P.*) *cristana* Schiff., *Argyrotoza latifasciana* Haw., *Notocelia aquana* Hb., *Blastobasis lignea* Wals., *Depressaria hypericella* Hb., *Ypsolophus scabrellus* L. and *Acrolepia granitella* Treits.

Some micro larvae were found, including *Oidematophorus carphodactyla* Hb. in the flower heads of *Inula conyza* DC. (*squarrosa* (L.) Bern. nec L.), also some pupae; *Cacoecia pronubana* Hb. was common on *Ligustrum vulgare* L. growing on the main road; also *Argyrotoza shalleriana* L. on *Viburnum lantana* L.

It was felt that this meeting would be incomplete without an inspection of the famous bomb crater. This was difficult to locate, being almost hidden from the pathway by a dense canopy of trailing plants. Most of the rare or foreign plants had disappeared, but the following species were seen: a tall leguminous plant (probably *Dosycnium herbaceum* Vill.), a sweet-scented evening primrose (*Oenothera*), a tall globe thistle (*Echinops*) which was growing near the crater, the huge leaves of *Inula helenium* L. were very noticeable and there were a number of flowers to be seen, several plants of a Campanula with white flowers were found and there were many foxglove plants belonging to several species. Those originally noted included *Digitalis lutea* L., *D. ferruginea* L., and *D. lanata* Ehrh., the last named being in abundance. None of the foxgloves were in bloom so identification was not attempted.

Those who stayed for tea were catered for at the Barley Mow Inn, where a very welcome meal was provided. Most people then proceeded back to Dorking North station for a train back home.

OXSHOTT, SURREY—8th September 1956.

Leader, Mr. F. D. Buck.

It was with no little pleasure that the party set off across Oxshott Heath on a bright sunny morning such as has been only too scarce this year. The venue, always damp, was unusually wet, due no doubt to the high rainfall this summer. Insects were not plentiful and even the commonest were not in their usual numbers.

Cicindela sylvatica L. (Col. Cicindelidae) was active on the slope in front of the Railway Station, but little work was done in this area. Moving across the Heath towards Esher Common the Dragonflies *Enallagma cyathigerum* (Charp.) and *Sympetrum danae* (Sulzer) were seen, the latter being the more plentiful. Near the Black Pond *Crambus hamellus* Thunb. was common locally, flying up from the vegetation in front of the party. In this area, just before lunch was taken, a single larva of *Aegeria culciformis* L. was extracted from a birch stump. Perhaps the commonest insect was *Plusia gamma* L., which was on the wing over most of the area; *Gonepteryx rhamni* L. was also seen.

After lunch the area round Black Pond was worked and finally a different route was taken back to the tea place.

A list of species taken or seen but not mentioned in the foregoing is as follows:—

Coleoptera: *Harmonia quadripunctata* (Pont.), a single example beaten from pine and was by far the best beetle of the day and a new county record. *Nephus redtenbacheri* (Muls.), *Cis boleti* (Scop.) and *Ennearthron affine* (Gyll.).

Hemiptera: *Picromerus bidens* (L.).

Lepidoptera: Imagines—*Lygris testata* L., *Eudoria truncicolella* Staint., *Nomophila noctuella* Schiff., *Euxanthis angustana* Hb., *Acleris* (*Rhacodia*) *emargana* F. (*caudana* F.), *Eucosma ramella* L., *E. similana* Hb., *Argyresthia semitestacella* Curt., *Plutella maculipennis* Curt. Larvae—On sallow: *Clostera pigra* Hufn., *Scoliopteryx libatrix* L., *Calocalpe undulata* L., *Biston betularia* L., *Acleris* (*Peronea*) *hastiana* L., *Telphusa notatella* Hb. and *Gracillaria stigmatella* F. On oak: *Sarrothripus revayana* Scop. On rosebay: *Mompha raschkiella* Zell. *Macrothylacia rubi* L. was also taken but no foodplant was given.

CHIPSTEAD, SURREY—16th September 1956.

Leader, Mr. F. T. VALLINS.

Although the morning was bright and promising, the sky soon became overcast and remained so for the rest of the day, whilst a cool wind from the north-east kept most insects grounded. However, the preceding wet weather had a beneficial effect on fungi, which were so abundant that the progress of the party was very slow, and lunch was taken in a clearing in the centre of Banstead Wood, instead of on the hillside overlooking Chipstead Valley as on previous occasions. Much interest was aroused by a spectacular clump, about four feet across, of *Polyporus giganteus* Fr. Most of the day was spent in the woods collecting fungi, of which at least fifty species were noted. The most interesting were:

Omphalia maura F., *Hygrophorus nigrescens* Quel., *Lactarius camphoratus* (Bull.) Fr., *L. cyathula* (Fr.) Ricken, *Russula virescens* (Schaeff.) Fr., *R. sororia* Fr., *R. lutea* Fr., *Naurcoria cucumis* (Pers.) Fr., *Boletus elegans* (Schum.) Fr., *B. viscidus* (L.) Fr., *Clavaria pistillaris* L., *C. stricta* Pers., and *Leptopodia elastica* (Bull. ex Fr.) Boud.

The interesting local plants found in this area were apparently suffering from the inclement weather. *Teucrium botrys* L. and *Ajuga chamaepitys* (L.) Schreb. were rather stunted, the latter being also much less common than in recent years. Only two flowers of *Phyteuma tenerum* R. Schulz could be found, but this was probably due to its flowering period being over. A small white labiate, which puzzled some members, proved to be an albino form of *Thymus serpyllum* agg.

The imagines of the following moths were taken: *Anaitis plagiata* L., *Colostygia pectinataria* Knoch, *Hapalia ferrugalis* Hb., *Stenoptilia pterodactyla* L., *Oidematophorus carphodactyla* Hb. and *O. lithodactylus* Treits.

The following lepidopterous larvae were found: *Deilephila elpenor* L. on *Chamaenerion angustifolium* L., *Eupithecia denotata* Hb. in seedheads of *Campanula trachelium* L., *Platyedra malvella* Hb. in seeds of *Malva moschata* L., *Mompha terminella* Westw. in leaves of *Circaea lutetiana* L., *M. raschkiella* Zell. in leaves of *Chamaenerion angustifolium* L. and *Ornix guttea* Haw. on *Malus sylvestris* (L.) Mull. (*Pyrus malus* L.).

MICKLEHAM, SURREY—22nd September 1956.

Leader, Mr. T. R. EAGLES.

The day was dry and pleasant but the vegetation and foliage were still wet owing to recent rain. This impeded beating and sweeping to a slight extent only. There were some sunny intervals and during one of them a male *Gonepteryx rhamni* L. was seen flying. Owing to the wet season fungi were unusually plentiful for the time of year. Especially abundant were *Marasmius peronatus* (Bolt.) Fr. and

M. confluens (Pers.) Karst. Interesting species noted were *Geaster triplex* Jungh., *G. fimbriatus* Fr., *Pleurotus petaloides* (Bull.) Fr. and a very beautiful example of *Cortinarius turbinatus* (Bull.) Fr.

The following imagines of Lepidoptera were noted:—*Tiliacea aurago* Schiff., *Pandemis corylana* F., *Acleris sparsana* Schiff. (*Peronea sponsana* F.), *Acleris aspersana* Hb., *Argyresthia semitestacella* Curt. and *Lithocolletis scabiosella* Dougl. Searching and sweeping for lepidopterous larvae produced *Perizoma bifasciata* Haw. (not uncommon on Red Bartsia, *Odontites verna* (Bell.) Dum.), *Eupithecia linariata* Schiff. (on *Linaria vulgaris* Mill.), *E. subumbrata* Schiff. (on *Scabiosa columbaria* L.), *Argyrotoza* (*Peronia*) *schalleriana* L. (on *Viburnum lantana* L.), *Mompha terminella* Westw. (in leaves of *Circaea lutetiana* L.), *M. raschkiella* Zell. (in leaves of *Chamaenerion angustifolium* (L.) Scop.), *Coleophora apicella* Staint. (on *Stellaria graminea* L.), *C. therinella* Tgst. (on *Cirsium arvense* (L.) Scop.), *Lithocolletis scabiosella* Dougl. (in leaves of *Scabiosa columbaria* L.), *Gracillaria auroguttella* Steph. (on *Hypericum* sp.) and *Bucculatrix frangulella* Goeze (on *Rhamnus cathartica* L.).

The beetle *Lycoperdina bovistae* F. was found in puff balls and *Psylliodes dulcamarae* Koch (on *Solanum dulcamara* L. at foot of Box Hill).

Tea was taken at the Stepping Stones.

PEVENSEY, SUSSEX—29th September 1956.

Leader, Mr. C. H. Hards.

The party numbered nine for this fixture, and included one visitor. The day was dull, with a strong south-west wind, and very few insects were seen on the wing.

However, searching and sweeping for larvae produced many species, including: *Macrothylacia rubi* L. (in fair numbers); *Ceramica pisi* L.; *Cucullia asteris* Schiff. and *Eupithecia castigata* Hb. (on *Aster tripolium* L.); *E. millefoliata* Rössl. and *Phalonia diplotella* Hb. (on *Achillea millefolium* L.); *Laspeyresia roseticolana* Zell. (on fruits of Wild Rose); *L. rufillana* Westw. (common in seedheads of *Daucus carota* L.); *Coleophora salicorniae* Wocke (on *Salicornia*); *C. erigerella* Ford (on seedheads of *Erigeron acris* L.); and *C. argentula* Zell. (common on seedheads of *Achillea millefolium* L.).

Of special note were the larvae of *Eupithecia millefoliata* Rössl. and *Phalonia dipoltella* Hb. These were taken by collecting the seedheads of Yarrow in linen bags. Both species were found to be present when the material was examined at home the following day. *Coleophora erigerella* Ford was noteworthy, being a new county record.

From seedheads of *Linaria vulgaris* Mill. several specimens of the beetle *Gymnetron antirrhini* (Payk.) were subsequently bred.

In the morning the collecting was confined to the shingle, but after lunch the party moved on to Normans Bay, where the salterns were explored. A nice tea place was found here and appreciated by all after the day's exertions.

DRUIDS GROVE—6th October 1956.

(Fungus Foray.)

Leader, Mr. W. H. SPREADBURY.

We were fortunate in having a fine sunny day for this meeting, and although fungi were not numerous in species they were sufficiently abundant to keep 17 members and friends fairly busy.

Over 50 species of the larger fungi were named but many expected species failed to show themselves. The genera *Russula* and *Lactarius* were almost entirely unrepresented, though some of the better-known species of *Merasmius* were very abundant. Some remarkably fine examples of the earth-star, *Geaster triplex* Jungh., were much admired. Noteworthy finds were *Tricholoma ionides* (Bull.) Fr., *Coprinus picaceus* (Bull.) Fr., *Pleurotus petaloides* (Bull.) Fr., *Crucibulum vulgare* Tul. and *Clavaria stricta* Pers.

Those who gave their attention to insects had much to report. Butterflies were very scarce but a fine Red Admiral (*Vanessa atalanta* L.) is worth mentioning in a season when this species has been conspicuously scarce.

Larvae of *Ethmia decemgutella* Hb. were still to be found on Gromwell (*Lithospermum officinale* L.), but beating produced few larvae indeed and none of the expected *Atolmis rubricollis* L., a species often abundant on the Yews in this area. Tea was taken at the "Stepping Stones".

Fungi noted are as follows:—

Armillaria mellea (Vahl.) Fr., *Tricholoma lascivum* (Fr.) Gillet, *T. ionides* (Bull.) Fr., *T. terreum* Fr., *Clitocybe nebularis* (Batsch) Fr., *C. gilva* (Pers.) Fr., *Mycena pura* (Pers.) Fr., *Collybia radicata* (Rehl.) Berk., *Merasmius peronatus* (Bolt.) Fr., *M. acervatus* Fr., *M. confluens* (Pers.) Karst., *M. rotula* (Scop.) Fr., *M. wynnei* B. & Br., *Pleurotus petaloides* (Bull.) Fr., *Panus stipticus* (Bull.) Fr., *Hygrophorus chrysaspis* Métrod, *Lactarius pyrogalus* (Bull.) Fr., *Russula nigricans* Fr., *R. ochroleuca* Fr., *Pluteus cervinus* (Schaeff.) Fr., *Crepidotus mollis* (Schaeff.) Fr., *Hebeloma crustuliniformis* (Bull.) Fr., *Inocybe pyriodora* var. *incarnata* (Bres.) Maire, *I. geophylla* var. *lilacina* Fr., *I. fastigiata* (Schaeff.) Fr., *Stropharia aeruginosa* (Curtis) Fr., *Psathyrella conopilea* Fr., *P. gracilis* Fr., *P. disseminata* (Pers.) Fr., *Panaeolus papilionaceus* (Bull.) Fr., *P. campanulatus* (Lin.) Fr., *Psalliota campestris* (Lin.) Fr., *Coprinus picaceus* (Bull.) Fr., *C. plicatilis* (Curt.) Fr., *Polyporus squamosus* Fr., *P. varius* Fr., *P. lacteus* Fr., *P. caesius* Fr., *P. adustus* Fr., *P. betulinus* Fr., *Fomes annosus* Cookes, *Polystictus versicolor* Fr., *Daedalea quercina* Pers., *D. cinerea* Fr., *Trametes rubescens* Fr., *T. gibbosa* Fr., *Stereum hirsutum* Pers., *Clavaria stricta* Pers., *Calocera viscosa* Fr., *Auricularia auricula Judae* (L.) Schroot, *Mutinus caninus* Fr., *Geaster triplex* Jungh., *Lycoperdon pyriforme* Schaeff., *Crucibulum vulgare* Tul., *Ciliaria scutellata* (Linn. ex Fr.) Quel., *Daldinia concentrica* Ces & de Nat. and *Xylaria hypoxylon* Grev.

THE WAINSCOTS

By Baron de Worms, M.A., Ph.D., F.R.I.C., F.L.S., F.R.E.S.

Read 8th March 1956.

This paper is intended to deal with that group of our moths popularly known as the Wainscots, a name no doubt derived from the generally ochreous colour of their forewings similar to that of wall panelling. Reference to these insects at once conjures up visions of marsh, mere and fen: of such well-known haunts as Wicken Fen and the Norfolk Broads, since it is with this type of terrain that these species of the Agrotidae are most usually associated. Some of the species are generally distributed, while a few are purely coastal on sandhills or on cliffs.

Before considering this group in detail I would like to make some general remarks on their natural history, nomenclature, classification, etc. I intend covering the 36 British species which are arbitrarily taken to comprise the Wainscots as described in Barrett who, like South, includes them in one group in consecutive order. Both these authors describe them under ten genera, of which the biggest are *Nonagria*, *Arenostola* (formerly *Tapinostola*) and *Leucania*. Naturally each author has his own ideas about the classification of this group which, in most cases in more recent years, has been divided among at least two sub-families. For instance, Warren in Seitz (1911, *Macrolepidoptera of the World*, **3**: 238) places the genera *Nonagria* and *Arenostola* (*op. cit.* 235) among the Amphipyrinae, while Hampson (1910, *Cat. Lep. Phalaenae B.M.*, **9**: 281, 292, 320 and 333) puts the genera *Arenostola, Coenobia*, *Oria* and *Archanara* (=*Nonagria*) among the Acronyctinae with *Cirphis* (=*Leucania*), and *Meliana* (1905, *op. cit.*, **5**: 576) among the Hadeninae. In this last Sub-family Hoffmeyer (1949, *De Danske Ugler*, p. 120) puts *Leucania,* while *Nonagria* and *Arenostola* (*op. cit.*, pp. 255 and 265) are placed among the Mamestrinae. With these few instances alone it can be seen what controversy there has been about the real scientific status of these insects and their relationship to allied genera and species. Abroad the Wainscots, as they can be somewhat loosely termed, are very widespread, the genus *Leucania* alone comprising some 200 species. Some of these, such as *Leucania unipuncta* Haw., the Army Worm, which does in the larval state untold damage to cereal crops in the U.S.A., and *Oria musculosa* Hb. which has been a serious pest on wheat in the Russian Steppes, are of special economic importance. In Africa, the allied genus *Sesamia* produces stem boring species which also do much damage to cereals.

Considering the natural history of these insects, nearly all the imagines are nocturnal, as a rule having a distinct flight period at dusk with a secondary flight usually between 11 p.m. and 1 a.m. The members of the genus *Leucania* are swift fliers as are most of the species of *Arenostola*. The early stages of the Wainscots are of especial interest and differentiate them to a great extent from most of the other Agrotidae. All the larvae feed either on Gramineae or on somewhat similar plants, *Typha*, *Phragmites*, *Juncus*, *Scirpus*, *Carex*, *Iris*, etc. None so far as I am aware feed on any foliage or leafy plants. The six species classed as *Nonagria* by South are exclusively internal feeders in the larval state on *Typha*, *Scirpus*, *Phragmites*, *Sparganium*, etc., while several other species such as *Oria musculosa* Hb., *Coenobia rufa* Haw., *Sedina büttneri* Hering and *Arenostola elymi* Treits. are also internal feeders on corn, *Juncus*, *Carex* and lymegrass (*Elymus arenarius* L.) respectively. *Chilodes maritima* Tausch. feeds on the inner lining of old reed stems, while *Rhizedra lutosa* Hb. eats out the root crowns of the reed. Most of the other species, in particular those of the genus *Leucania*, have their larvae feeding externally on many forms of the Gramineae or on reeds or related types of vegetation. All the species appear in the summer months, the earliest being *Meliana flammea* Curt. and *Leucania obsoleta* Hb., and the latest *Sedina büttneri* Hering and *Rhizedra lutosa* Hb. The habits and distribution in the United Kingdom show the majority to be denizens of the south, only 11 species being found north of the Border. A few localised species such as *Arenostola morrisii* Dale (*bondii* Knaggs), *A. extrema* Hb. (*concolor* Guen.), *Leucania favicolor* Barr. and *Arenostola brevilinea* Fenn were thought at one time to be exclusive to the British Isles, but all have now been found to occur on the Continent. No part of these Islands is more prolific in the Wainscots than the Eastern Counties, since these offer the biggest area of marsh and fen. The coastal marshes of Suffolk alone cover several square miles. Nearly all our Wainscots have been known for a considerable time, the latest addition being *Sedina büttneri* Hering discovered in the Isle of Wight in 1945. At this point I will add that I do not consider *Calamia tridens* Hufn. (=*Luceria virens* L.) a true Wainscot. Several species have greatly increased their range or become resident in recent years such as *Oria musculosa* Hb. and *Leucania l-album* L. At least three species are regular migrants, *Leucania unipuncta* Haw., *L. loreyi* Dup., and *L. vitellina* Hb.

With these introductory remarks I think I cannot do better than say something about each of the 36 recognised species of Wainscots in the British list. Much has already been written about them, but there is still plenty to be learned about this interesting group and by no means the last word has been said about them.

The first genus to be reviewed, according to the order in South, which I am following, is *Nonagria*, comprising six species. As already mentioned, the larvae of this genus are all internal feeders, while the pupae are to be found inside the stem of the food plant.

Nonagria algae Esp. (*cannae* Ochs.) Reed Wainscot.

This is one of our more localised species. At one time it was thought to be virtually confined to the Norfolk Broads where searching for the pupae in stems of *Scirpus* growing in deep water was quite an undertaking. More recently it has been found to occur widely in a number of small lakes in Sussex, and in 1952 was bred from Dungeness; while its discovery in the west of Ireland in 1953 was most surprising and leads one to think it is much more widespread in the west than was imagined. The insect always seems to be associated with *Scirpus*, though the larvae feed freely in *Typha* and pupate head upwards. The male moths come readily to light from about the middle of August onwards, while the female can be found at rest on stems of the food plant. There is considerable variation in the ground colour of the species.

Nonagria sparganii Esp. Webb's Wainscot

This insect, discovered first at Dungeness in 1879, has virtually a maritime distribution, since it is found all round our southern seaboard from the northern part of Suffolk, along the coast of England round to South Wales, and then locally along the southern part of Ireland. It has occasionally been found inland as at Ashford, Kent, and on Bookham Common, Surrey. The species usually affects small reed beds where *Typha* flourishes since this seems to be its favourite pabulum, though the larva will also feed in *Iris* and *Sparganium*. The long green larva, somewhat similar to that of *N. algae*, pupates head upwards in the stems. The moth, which is usually out early in August and continues to emerge well into September, is quite variable in ground colour, the Irish examples being well mottled with black. The female lays her ova in a long strip along the edge of the *Typha* leaf and they hatch in the following spring.

Nonagria typhae Thunb. The Bulrush Wainscot.

This is one of the largest and most familiar of the group, since the larvae or pupae are to be found in almost every patch of *Typha* throughout the British Isles well up into the Highlands of Scotland. The very long grey-green larvae pupate head downwards in the stems and their presence may be noted by the dead central leaf. The moth, which appears in late August as a rule, produces, on occasions, a very dark brown form known as ab. *fraterna* Treits. The female inserts her eggs well inside the sheaf of the *Typha* stem and the young larvae are quite mobile on the surface of the water.

Nonagria geminipuncta Haworth The Twin-Spotted.

This much smaller species is a veritable denizen of the reed bed. It is often very abundant in large tracts of these along river banks in the southern part of England, where its presence can be detected by the curious exit windows made in the stems of *Phragmites* by the larvae. Sometimes several pupae can be found head upwards in one stem. The insect appears in early August and flies freely at dusk among the reeds. It is common in the Eastern Counties.

Nonagria dissoluta Treits. The Brown-veined Wainscot.

This little species is very localised, but abundant where it occurs in reed beds over many parts of the southern area of England, through the Eastern Counties, up to the borders of Yorkshire and in Lancashire. It sometimes flies in hundreds from about the second week in August till well into September. The larvae and pupae (the latter head downwards) can be readily found in *Phragmites* stems. A very deep brown form of this species is relatively common. The moth is also a regular visitor to the sugar patch.

Nonagria neurica Hb. (*edelsteni* Tutt) The Sussex Wainscot.

The species I come to now has had a very interesting history both in this country and abroad. Hübner recognised the difference between this species and the preceding one, but it was not till 1908 that its occurrence in this country was definitely established by Messrs. Sharpe and Wightman. In the previous year Mr. H. M. Edelsten (1907, *Ent. Rec.*, **xix**: 1, 33 and 56, pl. II) wrote a paper pointing out the differences between these two closely related insects. The chief of these are that *N. neurica* has a small pale tuft of hairs on the thorax, the arrangement of the spots in the centre of the forewing is different from those in *N. dissoluta*, while the most striking point is that there are no discal spots on the underside of each wing in *N. neurica*. These are abundantly clear in *N. dissoluta*. The species was originally discovered in this country by Mr. Sharpe in some reed beds near Eastbourne, but it seems to have disappeared from its old haunts. In 1924 it was discovered by the late Sir John Fryer in some marshes on the Suffolk coast, but it was not until 1950 that it was found by Mr. P. J. Burton to be quite common and widespread in this area. *N. neurica* feeds in the stems of *Phragmites* like the larva of *N. dissoluta*, but the moth appears appreciably earlier, sometimes in the middle of July when it flies freely at dusk among the reeds. It also produces a dark form.

Coenobia rufa Haworth The Small Rufous.

This is the smallest species of the group and is prevalent in many marshy areas throughout the British Isles up to the Highlands, almost wherever its foodplant, the Jointed Rush (*Juncus articulatus* L.), flourishes. It appears in early August and flies readily at dusk. The larva is another of the internal feeders.

Chilodes maritima Tausch. The Silky Wainscot.

This little insect is often present in great numbers in old reed beds where the larvae feed inside the old *Phragmites* stems and can often be found in the spring in the top joint of a fairly wide one. The moths fly freely from mid-June till August in their favourite localities mainly in the Eastern Counties, but it is found widely over southern England and as near London as Esher. The species is noted for several special forms of regular occurrence, notably *bipunctata* Haworth with two black dots on the forewing, *wismariensis* Schmidt with a long black streak along its centre, while in *nigristriata* Staud. the veins of the forewings are streaked with black.

Meliana flammea Curt. The Flame Wainscot.

This insect is one of the specialities of the Eastern Counties fenland, in particular Wicken and Chippenham Fens where it sometimes comes to light in swarms in late May and early June. Though the original British specimen is said to have been taken at Lewisham, the species has seldom been seen outside the fens, but in recent years has been discovered in Dorset and Hants and may be more widespread than was imagined. The larva feeds externally on leaves of the reeds.

Sedina büttneri Hering Blair's Wainscot

The discovery of this small species in the autumn of 1945 was one of the major events in recent entomological annals. In late September of that year the late Dr. K. G. Blair noticed a small moth on a lamp near his house overlooking a reed bed at Freshwater, Isle of Wight. It was soon recognised as an entirely new British species and widely recorded (Blair, 1946, *Ent. mon. Mag.*, **82**: 140, and Tams, 1946, *Entom.*, **79**: 215). For a few years the insect was found to be common in early October in this one marsh, but it appears to have disappeared from its only haunt since the marsh was burnt in 1952. The life history was worked out by Urbahn (1933, *Stett. Ent. Zeitung*, **94**: 136 and 322) who bred it in *Carex*, in which the larva is an internal feeder, but it has not yet been bred right through in this country.

Arenostola pygmina Haworth (*fulva* Hb.) The Small Wainscot.

This little insect is another of those which make an appearance later in the year, usually in September, when it flies freely among the *Carex*, its foodplant, in most areas up to the Scottish Highlands, where it is a common dayflier in the late summer, over the large moorlands. Like the rest of this genus the larva is an internal feeder.

Arenostola extrema Hb. (*concolor* Guen.) The Concolorous.

This is one of the most localised of the Wainscots, being first discovered in 1844 in Yaxley Fen. Since then it has been found in a few localities only in Hunts and Northants where its larva feeds inside the reed grass (*Calamagrostis*). The insect appears in mid-June, flies freely at dusk and again about 2 a.m. on suitable nights. At one time considered to be purely British it has been recently discovered in southern Denmark.

Arenostola morrisii Dale (*bondii* Knaggs) Bond's Wainscot.

This other very local species was first taken at Charmouth by F. O. Morris, and was named after him by J. C. Dale. Dr. Knaggs subsequently found it on the cliffs at Folkestone in 1859. Since then this locality has been the headquarters of this very attractive insect, which flies plentifuly at dusk at the end of June among its foodplant *Festuca arundinacea* Schreber, a tall grass growing in clumps. The only other localities for the species are Lyme Regis and Sidmouth. It was only fairly recently discovered abroad on the north coast of Germany and near Salonika in Greece.

Arenostola fluxa Hb. (*hellmanni* Eversmann) The Mere Wainscot.

This is a typical fen species with its headquarters in the Eastern Counties, though it has been taken in woodlands in Hunts, Northants, Devon, Lincoln and on the coast of Dorset. It is often very abundant in early August in restricted areas where its foodplant, *Calamagrostis*, flourishes. It comes to light and sugar freely.

Arenostola elymi Treits. The Lymegrass.

This is one of the purely coastal species of the group, though it seems to occur along our eastern seaboard only, from Southwold in Suffolk at intervals northwards right up to the coast of Angus, Scotland. It is always associated with the foodplant Lymegrass (*Elymus arenarius* L.) on the sandhills where the fat larvae may be found inside the stems of the grass in March. The moth appears from late June till August and sits about on the Lymegrass after dark often in large numbers on suitable nights. It comes freely to light.

Arenostola phragmitidis Hb. The Fen Wainscot.

This pretty species which, as its name implies, is mainly an inhabitant of the Fens, also occurs in many reedy places in the southern part of England and throughout the Midlands to Lancashire and Yorkshire. It is often abundant about mid-July in reed beds where it sits about on the stems in numbers on warm nights. The green larva with a row of black spots along the back feeds in the stems of *Phragmites* throughout the winter and in the spring.

Arenostola brevilinea Fenn. Fenn's Wainscot.

This is indeed one of the most local of our Wainscots, since until quite recently it was thought to exist only in some of the marshes of the Norfolk Broads. In this region it is sometimes very common towards the end of July and in early August flying swiftly among the reeds, in the stems of which the larva feeds when young, though in its later stages it resorts to the leaves of *Phragmites*. In 1950 the insect was found to be quite common in the large reed beds along the Suffolk coast since when it has been taken there in some numbers and over a wide area. At first this species was considered purely British, but it has recently been found to occur in Holland. A form occurs without the black basal line, ab. *sinelinea* Farn.

Oria musculosa Hb. The Brighton Wainscot.

Very few examples of this pretty little insect were taken between its original discovery near Brighton in 1855 and 1909 when the late Mr. H. Haynes found it commonly on gas lamps on the outskirts of Salisbury. For some reason its occurrence in this area was neglected till 1939 when it was found to be abundant in cornfields to the north of the town. Its time of appearance is usually the last few days of July, but sometimes it occurs towards the middle of August, when the harvest is well under way. At this time it can often be seen at rest by day on the heads of corn, chiefly wheat, and at dusk on the heads and stems. About 10 p.m. it comes readily to light, as many as 300 being seen in one night in 1954. As yet it is a mystery where the ova are laid in the wild, though the larvae have been bred from wheat stems. The insect seems to be spreading, since it is now common over the whole of north Wilts and is numerous round Winchester. It has also found its way into Surrey, Somerset and Bucks.

Rhizedra lutosa Hb. The Large Wainscot.

This fine insect is usually the last of the group to appear in the season, since October is essentially its month. At this period it may be found at rest after dark, sometimes in hundreds, in big reed beds all over the country up to the north of Scotland. It is even said to occur in the Shetlands. The larva feeds in the root crowns of *Phragmites* (Blair, 1951, *Ent. mon. Mag.*, **87**: 131). The females seem to wander, as they are often taken far from any reed beds.

The next genus to be treated is the large one of *Leucania* the larvae of which all feed externally on many species of the grasses.

Leucania pallens L. The Common Wainscot.

This species is in many ways the most familiar of the genus, being found almost all over the British Isles at the end of June and again in September. It is appreciably variable, some forms being bright red, while in July 1955 a distinctly melanic specimen was taken near Weybridge in Surrey by Mr. J. L. Messenger.

Leucania favicolor Barrett. Mathew's Wainscot.

There has always been a good deal of controversy whether this insect can be regarded as a good species. Certainly the smooth appearance of the wings make it seem quite distinct from the preceding with which it usually flies in salt marshes at the end of June. Its distribution since it original description in 1896 appears to be from Dovercourt in Essex southwards along the coast round the Thames estuary, along to Sheerness and then there seems to be a gap till Hayling Island, West Wittering and Titchfield, which appears to be its most westerly point.

The insect has recently been found on the N.W. coast of Germany near the Danish border.

Leucania impura Hb. The Smoky Wainscot.

This is another of the commoner species in the genus ranging over England, Ireland and up to the Moray Firth. It is prevalent in July, but is much less often seen in the autumn than *L. pallens*. Occasionally a very melanic or smoky form has been taken.

Leucania straminea Treits. The Southern Wainscot.

This is, on the whole, a much more local species, which can be distinguished from the last by the pointed tips of the forewings and the row of black spots on the underside of the hindwings. It seems to be confined in England to the southern and eastern counties. In the latter it is sometimes abundant among reeds in July. The pale ochreous larvae can often be found after dark on the leaves of *Phragmites*. It appears to be fairly widespread in the south and west of Ireland.

Leucania pudorina Schiff. (*impudens* Hb.) The Striped Wainscot.

This species is fairly widespread in the southern portion of England in July, usually occurring on heaths where bogs are prevalent, though it is also a marsh lover since its larva is a reed feeder. It is to be found as far north as Yorkshire and in the south and west of Ireland.

Leucania obsoleta Hb. The Obscure Wainscot.

As already mentioned, this species is often the earliest among the Wainscots to appear, sometimes being on the wing at the end of May. It seems to have a very restricted range, being found chiefly in the fens of the Eastern Counties, though it is fairly numerous in small reed beds along the Thames and in Surrey. The larva is another reed feeder.

Leucania littoralis Curtis The Shore Wainscot.

This is essentially a sandhill species, being found almost all round our seaboard wherever Marram grass (*Ammophila arenaria* (L.) Link.) is plentiful. The blue-green larvae may be readily found by searching at the Marram roots in the spring, while the insect is plentiful at the flower heads of Marram in July. It is widespread on the coasts of Scotland and Ireland.

Leucania comma L. The Shoulder-striped Wainscot.

This is another very prevalent species in the middle of the summer, ranging right up to the edge of the Highlands. It is very common from mid-June onwards. The larva appears to feed on many kinds of grass, mainly Cock's-foot (*Dactylis glomerata* L.).

Leucania l-album L. White L Wainscot.

It is doubtful if prior to 1933 many more than half-a-dozen specimens of this insect had been found in Britain. A few had been taken along the south coast in Devon and at Eastbourne. Suddenly the moth turned up in numbers near the Lizard in 1933 and from then onwards it has steadily spread both eastwards and westwards till today it is quite a common species along the coasts of Cornwall, Devon, Dorset to the Isle of Wight and up to South Wales. It has two generations, in June and again in September when it is sometimes in great numbers as in 1938 when 170 were seen on the sugar in one night. The larvae feed on *Festuca arundinacea* Schreber.

Leucania putrescens Hb. The Devonshire Wainscot.

This local species is a denizen of the south-west of England, where it seems to favour rocky cliffs round the coasts of Devon and Cornwall to South Wales. It usually appears about the middle of July and can be taken at dusk flying over the flowers of the Wood sage (*Teucrium scorodonia* L.) to which it is very partial. It is doubtful if it has been captured much east of the Torquay area, but is a very widespread insect abroad.

Leucania unipuncta Haworth. The White Speck or American Wainscot.

This species is one of the most noted migrants among the group and one which sporadically visits these islands mainly during the autumn in September and October. In 1928 a great number were taken near Cork on the south coast of Ireland, but since then there are few years when one or two are not reported. It is seldom seen far inland. In September 1954 a melanic specimen was taken at Southsea by Mr. J. Langmaid. A great deal of work has been done on this insect. At one time considered to be one species, American workers have now divided it into some half dozen ranging the world, each species for the most part occurring in a fixed geographical area. The one that visits us is the original *L. unipuncta*, but it is doubtful if this is the same as the Army worm which ravages cereal crops in the U.S.A., though at one time it was considered to be the same.

Leucania loreyi Dup. The Cosmopolitan.

This is by far the rarest of the Wainscots at present, though it is one of the commonest in tropical regions. Nearly all British specimens have been taken in Devon and Cornwall. Four were obtained in the latter county in 1945 during September which is its favourite month for appearing here. In October 1955 a specimen was taken near Bordon, Hants, the first time it has been captured so far inland.

Leucania vitellina Hb. The Delicate.

This most attractive insect is another of the migrants and seems to visit our shores almost annually and sometimes in large numbers as in 1938. It appears in June but more often in September, when it is a frequent visitor to sugar. It has often been taken quite a long way inland, even in the London area, though the coastal regions of the south are its special haunts. It has been bred on various grasses.

Leucania albipuncta Schiff. The White-point.

This insect seems to have cycles of appearance. It was quite common towards the end of the last century along parts of the south coast of England, but suddenly became very rare and then equally suddenly reappeared in its old haunts about 1932, since when it has been reasonably numerous most years, sometimes in June, but more often in August and September. It has chiefly been taken in recent years in Kent, Essex and Dorset, though it has been often seen in Hants and South Devon. It is mainly coastal, though examples have been taken well inland as at Ham Street, Kent, and Egham, Surrey, in 1934. The moth is distinctly smaller than *L. lithargyria* and has a much more prominent white speck.

Leucania lithargyria Esp. The Clay.

This is one of the most well known of the summer noctuids and is a true Wainscot. It is prevalent throughout the British Isles well up into the Highlands. A melanic example was taken recently in Surrey by Mr. A. Best. It is sometimes very common at sugar and light.

Leucania conigera Schiff. The Brown-line Bright-eye.

This is yet another of the commoner members of the group, being found in most parts of the British Isles in late July and ranging well up into the Highlands, though apparently not noted very far north of the Caledonian Canal. It sometimes produces a bright orange form. It is also quite common in Ireland.

Mythimna turca L. The Double-line.

This fine insect is usually included in the Wainscots. It is one of the more local species appearing at the end of June and often occurring abundantly in its special localities, especially in some of the woods in the neighbourhood of Havant in Hampshire. It has often been noted quite close to London at Wimbledon Common and in Richmond Park. It has seldom been seen in the south-eastern areas, but has been taken in Devon and quite commonly in the west of Wales. There are also a few records from Scotland and Ireland. It comes freely to sugar and often to light. The larvae can be found at night in May feeding on Cock's-foot grass (*Dactylis glomerata* L.).

ADVANCES IN INSECT VIRUS RESEARCH

By Claude F. Rivers.

Read 26th April 1956.

At the present time much attention is being paid by research workers to the viruses of man and his animals because of the vast importance of these disease agents to Man's economy. It is perhaps because of this that little notice has been taken of the interesting group of viruses which attack insects.

The existence of viruses was first demonstrated by Iwanowsky, a Russian botanist, in 1892. He was working with a disease of the tobacco plant called mosaic and in the course of his experiments he passed sap from such a diseased tobacco plant through a Pasteur-Chamberland candle. This filter removed all visible micro-organisms but when the filtrate was rubbed on to leaves of a healthy plant Iwanowsky found that it was still capable of inducing disease. A little later two German workers, Loeffler and Frosch, demonstrated the filterability of the agent responsible for foot-and-mouth disease in cattle. The earliest record of an insect virus disease probably belongs to the Italian poet Vida who, in his poem 'de Bombyce' in 1527, undoubtedly refers to the nuclear polyhedral virus disease of the Silkworm, *Bombyx mori* L. This particular disease is also mentioned in a book on butterflies written by Maria Sybylla Merian in 1679. Pasteur in his classic study of the disease of *Bombyx mori* L., which he called 'flacherie' was, in fact, concerned with a virus infection. He did not realise that the spore forming bacillus which he found associated with 'flacherie' was only a secondary invader. Polyhedral bodies seem first to have been noticed in the middle of the 19th century by Cornalia (1856) and Maestri (1856) who associated the phenomena with the jaundice of the Silkworm. In 1907, von Prowazek made a further advance when he showed that material from diseased silkworms was still infectious after the polyhedra had been removed by filtration. Glaser and Paillot did much important pioneering work on insect virus diseases until the invention of the electron microscope which made it possible actually to see the virus particles themselves.

Orders of insects attacked by viruses.

Virus diseases have so far only been discovered in the Lepidoptera, Hymenoptera and Diptera. The greatest number have been described in the Lepidoptera but this may only be due to the fact that the life histories of this Order are more popularly studied. The diseases mostly affect the larval stages and sometimes the pupae are also killed. Bee paralysis is an example of a disease of the adult and at Cambridge we had the case of a Privet Hawk moth which survived an epidemic during its larval life and died of a polyhedrosis after emerging from the pupa.

Types of insect viruses.

1. Diseases characterised by polyhedra in the nuclei of the diseased cells. These are called the nuclear polyhedroses.
2. Diseases characterised by polyhedra in the cytoplasm of the diseased cells. These are called the cytoplasmic polyhedroses.
3. Diseases characterised by the presence of minute granules in the nuclei and cytoplasm of the diseased cells. These are called the granuloses.
4. Diseases not characterised by any inclusion bodies. These are called the non-inclusion virus diseases.

The Nuclear Polyhedroses were the first type of virus to be discovered and the classic example of this type is the virus disease of *Bombyx mori* L., the Silkworm. The appearance of larvae which have died with a nuclear polyhedrosis is very characteristic. The sick larvae lose their appetites and often wander some distance from the feeding sites. In Germany the disease has been called 'tree-top' disease because of the habit of *Lymantria monacha* L. larvae to ascend to the tops of trees before dying. At death, the larvae are caused to hang down head first because of the complete liquefaction of the body contents. (Fig. 1). The integument is extremely fragile and the final manifestation of the disease is the rupture of this and the liberation of the body fluid containing countless numbers of polyhedral crystals. (Fig. 2). In this way the diseases are very readily disseminated and it is little wonder that epidemics are often widespread. A notable outbreak of virus occurred amongst larvae of the Pine Sawfly, *Neodiprion sertifer* Geoffroy, in Scotland in 1954. (Fig. 3). The nuclear polyhedra can be readily seen with a 1/12th oil immersion lens under the optical microscope; in fact, they are visible with a 1/6th power lens but this lower power is not suitable for the purpose of diagnosis.

The method used to test for the presence of polyhedra in a dead larva is very simple and takes very little time. The dead caterpillar is placed on a glass slide and the skin ruptured to exude a sample of the body contents. Care should be taken to ensure that a very thin smear is made, otherwise it is difficult to make out the polyhedra against the

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LEGEND FOR PLATE VI.

Fig. 1 Larvae of *Aglais urticae* L. dead with a nuclear polyhedral virus disease.

Fig. 2 A virus diseased *Aglais urticae* L. larva showing the liquefied body contents after the skin has ruptured.

Fig. 3 Virus-diseased larvae of *Neodiprion sertifer* (Geoffrey) collected in Scotland, 1954. ×½.

Fig. 4 Nuclear polyhedra seen with the oil immersion lens of an optical microscope. Some blood cells have remained intact and they are seen to be packed with the polyhedral crystals. ×1,400.

Fig. 5 Cytoplasmic and nuclear polyhedral crystals seen with the oil immersion lens of the optical microscope. The way in which cytoplasmic polyhedra are stained with Giemsa reagent is readily seen as distinct from the non-staining nuclear type. ×1,400.

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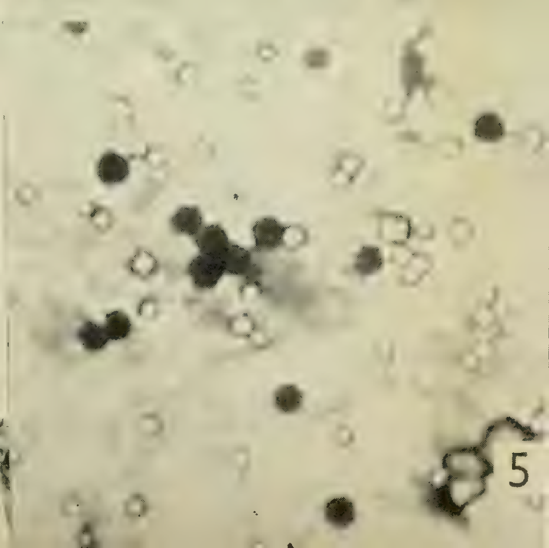
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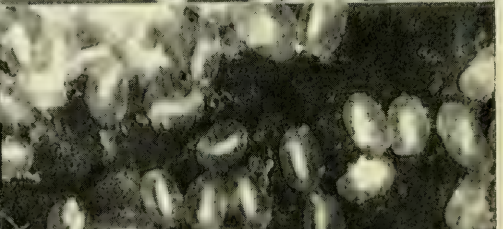
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PLATE VII.

debris. The slide is heated over a flame and stained with Giemsa reagent or methylene blue whilst it is still warm. After washing off the surplus stain and drying, the slide is ready for examination. Under the microscope the polyhedra will be readily distinguishable by their resistance to the stain. (Fig. 4). There should be a good scattering of polyhedra throughout the field of vision and here and there you may come across complete nuclei packed full of the crystals. At first these polyhedra were thought to be the disease agent itself until it was noticed, by using a dark field microscope, that they contained highly refringent bodies within them. In 1947 Bergold, working in Germany, showed that it was possible to dissolve away the polyhedral capsule with weak sodium carbonate and thus reveal the contents. This treatment revealed the presence of a large number of regular sized rod-shaped bodies which for a time were considered to be the virus itself. (Fig. 7). This explanation, however, was not entirely satisfactory since it was noticed on several occasions that there appeared to be smaller rods protruding from the bodies. The matter was finally resolved by cutting ultra thin sections through the polyhedra and demonstrating that the virus particles were, in fact, doubly encapsulated. Whether the polyhedral bodies and the peri-virus capsule are created by the cell as some sort of defence is not known but at all events it is quite ineffective from this point of view. Once the polyhedra have started to form that cell is doomed and the capsules provide a most efficient means to enable the virus to spread. Protecting the virus as it does from the effects of exposure the encapsulation provides a kind of parcel post which ensures the safe delivery of the disease to the next victim. Nuclear polyhedra have been shown to be unaffected after storage for several years outside insect tissues. The site of multiplication of this type of virus is in the nuclei of the cells of the fat-body, skin, tracheae and blood.

The first cytoplasmic polyhedrosis virus disease was discovered by Smith and Wyckoff at Cambridge in 1950. They showed that there existed a different type of polyhedral crystal from the nuclear type first described. When treated with weak sodium carbonate these crystals did not dissolve completely like the nuclear polyhedra, but left behind a framework filled with circular holes. (Fig. 6). Further investigation

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LEGEND FOR PLATE VII.

Fig. 6 Cytoplasmic polyhedral crystals from *Phlogophora meticulosa* after alkali treatment. Compare Fig. 7. × 14,600.

Fig. 7 A single nuclear polyhedral crystal from *Bombyx mori* L. dissolved with weak sodium carbonate showing the peri-virus capsules and some virus rods. An electron microscope picture. × 11,300.

Fig. 8 The non-encapsulate virus from *Tipula paludosa*, Meigen. An electron microscope picture. × 21,160.

Fig. 9 The granulosis virus seen with the electron microscope after treatment with weak sodium carbonate. The granules are partially dissolved and show clearly the inner capsule which contains the virus. × 17,800.

showed that the virus particles were spherical and not rod-shaped as were the viruses inside the nuclear polyhedra. Another point of difference is that this type of polyhedra stains readily with Giemsa solution. (Fig. 5). It was later shown by Xeros (1952) that this virus developed in the cytoplasm and not in the cell nucleus. This type of polyhedrosis was first found in diseased larvae of *Arctia caja* L., The Garden Tiger Moth. Since then it has been found to be quite common amongst the larvae of Lepidoptera. The effect which this disease has on larvae is very different from the liquefaction caused by the nuclear polyhedroses. Growth is inhibited by the presence of this disease and the larvae have a rather stunted appearance. (Fig. 16.) This is particularly noticeable in the Sphingidae which are very prone to cytoplasmic virus infections. Many of the hairless moth larvae subject to this disease can be diagnosed on sight by the whiteness of the infected gut cells being visible through the skin. A good example of this can be seen in the case of the larvae of *Phlogophora meticulosa* L. (Fig. 10). At death the cadaver shrivels and dries and the dispersal of the virus is, therefore, not quickly achieved.

The *granulosis viruses* are the third type which we have to consider. Macroscopically these diseases are very similar to the nuclear polyhedroses in their effect upon their victims. (Fig. 12). Examination of the body fluid with an optical microscope is often inconclusive because the granules are at the limit of resolution with the highest power lens. To be certain of the diagnosis in a disease of this type, it is essential to consider the characteristic symptoms in addition to the microscopic examination. In the early stages of the disease the sick larva has a white appearance along the ventral surface. (Fig. 11). This is caused by the large numbers of granules present in the fat-body cells. Early microscopic examination of the body contents of such a larva, in the manner described for nuclear polyhedroses, would reveal a fine granular background throughout the smear, which in the absence of other pathogens may be regarded as a certain indication of the granulosis type disease. A feature of all virus infections is the surprising lack of offensive smell from the newly-dead larvae. The putrid smelling dead bodies which are occasionally encountered are a sign of bacterial decay and this fact may usefully be borne in mind as a guide to the difference between a bacterial disease and one caused by a virus. In granulosis virus diseases, the granules (Fig. 9) are double capsules enclosing one, in some species two, rod-shaped virus particles as has been shown by cutting ultra thin sections through some of them. At Cambridge, we have always found the multiplication of this type of disease to occur in the nuclei of the fat-body and skin but Paillot (1936) has recorded a similar disease in *Agrotis segetum* Schiff., where it takes place in the cytoplasm of these cells. Here again we have a disease which is easily spread and capable of withstanding long periods outside insect tissues. I am at present engaged on research into the possibilities of using a granulosis virus as a biological control against *Pieris brassicae* L. larvae.

Finally, we come to the non-inclusion viruses which can only be seen with the electron microscope. It is as well that this type is uncommon because they would be impossible for the amateur to diagnose. Although they are not an important group, I would like to mention one example of this type since I was concerned in its discovery. A disease was discovered in larvae of *Tipula paludosa* Meigen, the Crane Fly, which I collected in Shropshire in 1954. This virus multiplies in the fat-body cells and in the early stages of infection gives a characteristic blue appearance to this tissue which is visible through the skin. Finally, the leatherjacket becomes very white along its ventral surface and when punctured yields an amazing amount of pure non-encapsulated virus particles. (Fig. 8). It is generally supposed that the non-inclusion viruses are unlikely to survive for very long outside their hosts. In the case of this *Tipula paludosa* Meigen virus, however, we have been able to keep it for many months at 38°F. without any apparent loss of infectivity.

Specificity of Insect Viruses.

Having regard to the fact that it has been found possible to use dogs, mice and monkeys in the study of human viruses and that some plant viruses will produce symptoms in other distantly related plants, it is very surprising to find that insect virus diseases are highly specific. That this is so is perhaps well illustrated in the case of the larvae of the genus *Antheraea*. At Cambridge we have repeatedly tried to infect larvae of *Antheraea pernyi* Guérin-Méneville with a cytoplasmic polyhedrosis from *Antheraea mylitta* Drury without success. We have also fed the viruses of some sixty different insects to larvae of *Pieris brassicae* L. without ever once inducing the outbreak of a virus disease. The same negative results have attended similar efforts to kill larvae of *Tinea pellionella* L. and *Tineola bisselliella* Hummel. There are one or two exceptions to this rule and the work of Smith and Xeros (1953) is notable in this respect. These workers isolated nuclear and cytoplasmic polyhedra from some larvae of *Vanessa cardui* L. and fed this inoculum to 30 species of Lepidoptera selected at random. Despite the fact that the nuclear polyhedra greatly outnumbered the cytoplasmic type in the inoculum, the greater number of species died with a cytoplasmic disease. Some species died with both types of disease and a few species were unaffected. This apparent susceptibility to cross inoculation may well have some connection with the mystery of latent viruses which we know to be very common. It seems very likely that any larva carrying latent virus would develop symptoms if it were to receive an inoculation of any similar virus. In the case of the experiment referred to, the dosage administered would certainly have been unnaturally large. A great deal of work remains to be done in this field before the explanation, or even perhaps the validity of this claim, is forthcoming but at the present state of knowledge insect virus diseases seem to be, at least naturally, specific.

Laboratory work with insect viruses.

Insects are ideal laboratory animals in which to study the development and nature of viruses. Their rapid life cycle and the ease with which large numbers can be bred and infected enable the virologist to investigate his fundamental problems far quicker than is possible with other material. As viruses are picked up by ingestion it is in this way that larvae are inoculated in the laboratory. A dilute suspension of virus is smeared on leaves which are then allowed to dry in order to destroy any bacteria which might otherwise confuse the result. After being fed with the infected food the experimental larvae are thereafter given clean food and kept as well as possible to avoid the possibility of there being any other contributory cause of death. The time taken by larvae to die after infection is related to the amount of virus consumed and the rate at which they are growing. At Cambridge we have found that this may vary from 3 days to 4 weeks. (Figs. 14 and 15).

With virus diseases under controlled conditions it has been possible to see what happens from the onset to the final stage of infection. Dr. Kenneth Smith and Mr. N. Xeros (1954) produced a fine series of sections to illustrate this and I am indebted to them for allowing me to refer to their work. The insect was *Bombyx mori* L. and the larvae were inoculated in the manner already mentioned, with a nuclear polyhedrosis from *Bombyx mori* L. Larvae were killed off daily and in this way the picture of the development of the virus in the cell was built up. (Fig. 17). In the first instance the nucleus becomes enlarged (a) then the chromatin in the nucleus starts to clump, forming a central mass, whilst some collects around the sides (b). The virus is first seen without apparently any capsule in this chromatic net (c). At the next stage the virus particles are freed from the chromatic net into the ring zone (f), where they are then drawn in to the polyhedra (e), which form just before the

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LEGEND FOR PLATE VIII.

Fig. 10 Larvae of *Phlogophora meticulosa* L. showing the diseased gut tissue visible through the skin. ×½.

Fig. 11 A granulosis diseased *Pieris rapae* L. larva showing the white ventral appearance as compared to a normal healthy insect. ×1.

Fig. 12 Larvae of *Pieris brassicae* L. which have died with a granulosis virus disease. ×½.

Fig. 13 A section from a larva of *Phlogophora meticulosa* L. in an advanced state of infection with a cytoplasmic polyhedrosis. The cytoplasm of these gut cells is clearly seen to contain the polyhedral crystals. ×1,000.

Figs. 14 and 15 An experiment in infecting *Pieris brassicae* L. larvae with their granulosis virus disease. The experiment is seen after 72 hours (fig. 14) and after 96 hours (fig. 15). The lower batch has been fed on infected leaves and the top batch are uninfected controls. ×¼.

Fig. 16 A diseased *Sphinx ligustri* L. larva with a healthy larva, both of same age, for comparison. The stunted growth is typical of the effect of a cytoplasmic polyhedrosis. ×½.

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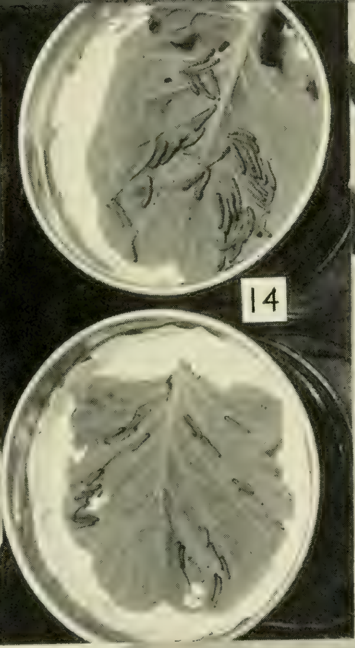
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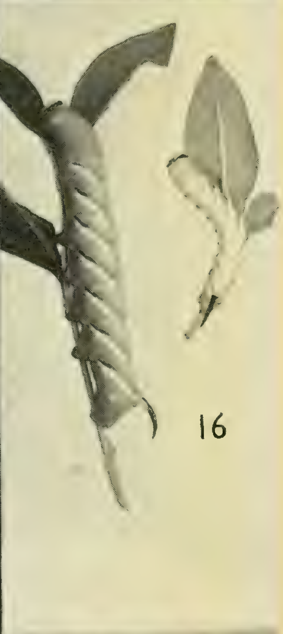
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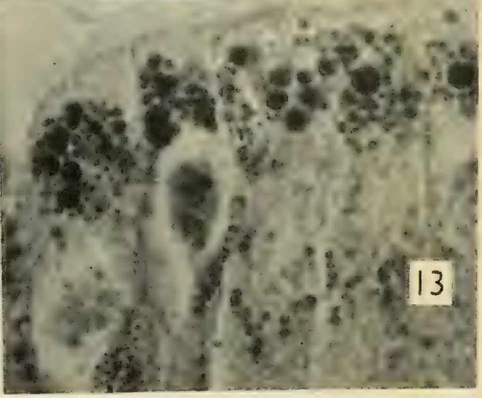
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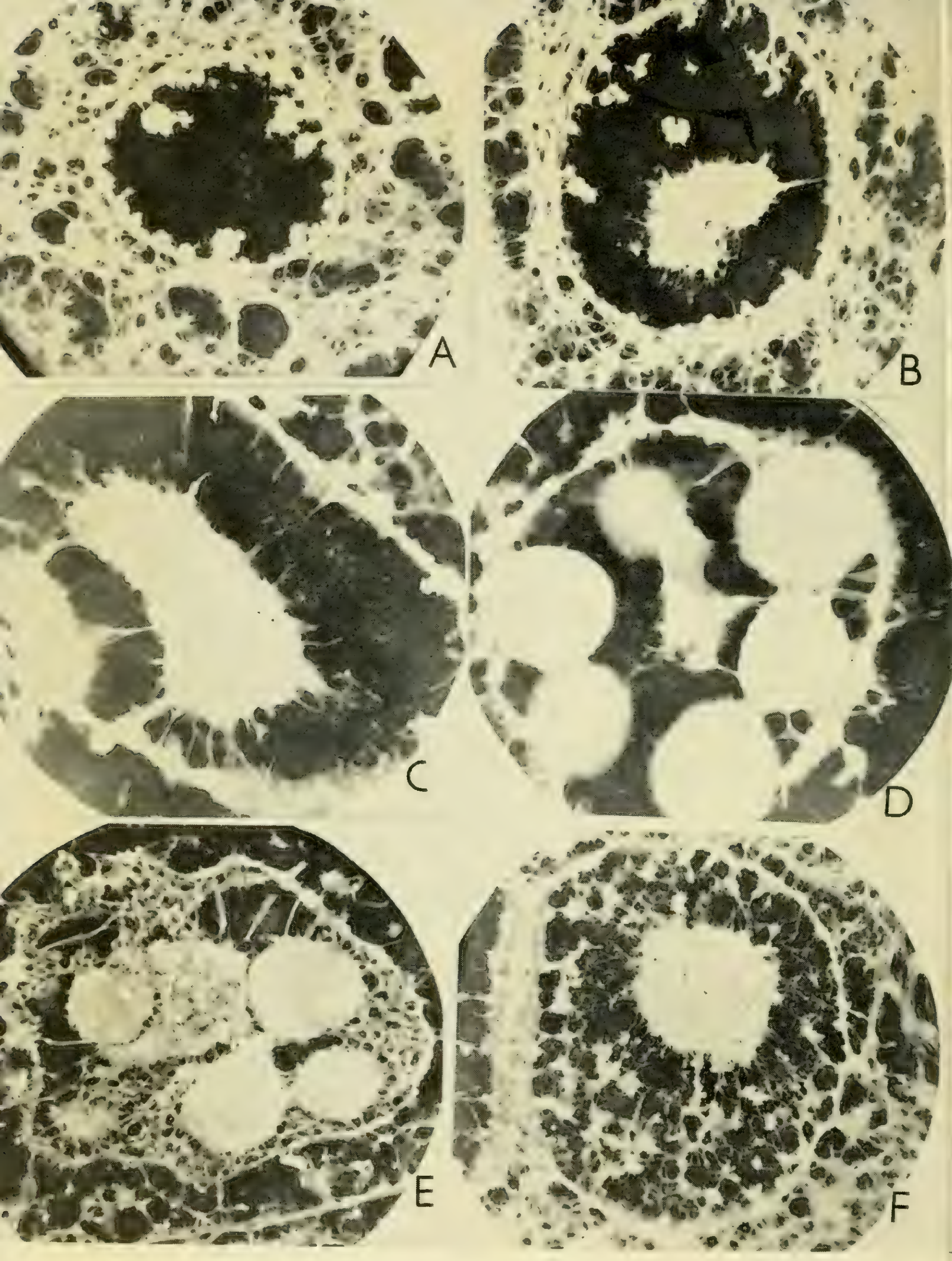

PLATE IX

point of cell destruction (d). This work was, of course, carried out with the electron microscope but equally interesting studies can be made more simply using the optical microscope. If larvae at different stages of infection are embedded in wax, the sections can be stained to show the various tissues in which virus multiplication is taking place. (Fig. 13). Another aspect of the work is the production of large quantities of virus for chemical analysis.

Biological Control by the use of Viruses.

It seems quite possible that a specific virus disease will be found for most of the world's insect pests, in which case there is a chance that the indiscriminate use of chemical sprays can be replaced by a much cheaper biological control. This interesting possibility is already being investigated and some encouraging reports have been received. Natural control by these diseases is an established fact as instanced in the case of *Lymantria monacha* L. on the Continent. Whenever the population of larvae of this species becomes abnormally high, there is usually an outbreak of a nuclear polyhedrosis which rapidly restores the situation. In California the discovery of a similar disease in larvae of *Colias philodice eurytheme* Htg. has been successfully used to produce an epidemic amongst this fodder crop pest. A virus suspension containing 5 million polyhedra per millilitre was applied at the rate of 23 litres to the acre with such success that it is now almost impossible to find virus-free stock of this species in that area of the U.S.A. A classic example of the value of this type of control is the case of the European Spruce Sawfly, *Gilpinia hercyniae* Htg. in Canada. This pest was accidentally introduced into North America but is now under control by the dissemination of a virus disease and the liberation of parasitic Hymenoptera. The highly infectious nature of the polyhedral and granulosis diseases together with their long storage life, should make this method a very practical proposition. From my preceding comments it will be seen that large quantities of virus can be produced quite readily and in the case of *Pieris brassicae* L., *Pieris rapae* L., and *Gilpinia hercyniae* Htg., it has been shown that only 2-4 larvae per gallon of water is needed to give a high degree of control.

LEGEND FOR PLATE IX.

Fig. 17 Development of the virus in nuclear polyhedrosis.
- (a) "nucleus becomes enlarged". ×3,140.
- (b) "the chromatin of the nucleus starts to clump, forming a central mass whilst some collects on the nuclear membrane". ×3,140.
- (c) "The virus is first seen . . . . in this chromatic net". ×9,280.
- (d) Polyhedra seen just before the point when the nucleus is ruptured. ×5,170.
- (e) "they are drawn into the forming polyhedra". ×7,140.
- (f) ". . . . the virus particles are freed from the chromatic net into the ring zone". ×5,000.

Virus diseases and extinct Lepidoptera.

There are many explanations put forward to account for the disappearance of insects from their former haunts, but I would like to suggest the possibility that virus diseases may be a contributory factor. I have already made reference to the severe epidemics which afflict *Lymantria monacha* L. on the Continent. What would be the effect of such an outbreak upon insects at the limit of their range? The disappearance of *Lymantria dispar* L., which we know to have a distinct and equally dramatic disease to *L. monacha* L., from its localities in Britain is food for thought in this respect. Another conspicuous absentee, with a known predisposition to a virus disease, is *Aporia crataegi* L. Latent virus is ever present and it is sometimes activated by adverse humidity. At Cambridge we have found that *Tineola bisselliella* Hummel larvae bred for generations without virus outbreaks can be made to come down with such a disease if they are kept for any length of time at 50° Relative Humidity or below. With these ideas in mind, it is not difficult to imagine that the draining of the Fens could have produced a state of insufficient humidity for the health of *Lymantria dispar* L., whilst the change to the Atlantic climate, which now is said to predominate in Britain, made conditions too wet for *Aporia crataegi* L.

Prevention of virus outbreaks amongst insects in captivity.

Although it is still not possible to prescribe a cure in the case of insect viruses, we can apply the knowledge gained so far to limit the possibility of these outbreaks. The most important factor is care and cleanliness in the keeping of larvae in captivity. Fortunately, the growing interest in the study of life histories has brought about a very high standard in the technique of larvae rearing, but there are one or two points which may have been overlooked. Humidity plays a very important part in the health of insects and because of this, every effort should be made to ensure that the conditions in captivity are similar to those prevailing for the species in nature. I have already referred to the effect of low humidity upon healthy *Tineola bisselliella* Hummel larvae. At the Insect Pathology Department in California they regularly 'discover' new virus diseases by subjecting their larvae to overcrowded, highly humid conditions. With the constant threat of latent virus ever present, it is important to avoid any condition which will lower the vitality of the insects in captivity. Viruses are minute particles of matter and are thus easily spread around once they have escaped from their victims. In the event of having some valuable stock to rear or when virus is suspected, it is a good plan to keep a vessel of water containing 10% Sodium Carbonate in which to rinse all foliage. The polyhedra and even the virus itself will be destroyed by this treatment, although naturally the plant material also suffers a little. The greatest difficulty will be experienced in overcoming the problem of the latent or inherited virus. It is not known just how viruses pass from generation to generation but there is little doubt that they do. At Cambridge we have, in some instances, bred 5 or 6 generations without difficulty and then lost our stock due to a spontaneous attack of virus. In-breeding does not appear to be a prime cause because I have collected wild female moths and had latent virus break out amongst the resulting larvae. One explanation put forward is that the female adult has itself survived an infection which has left it with some diseased tissue. This amount of virus, although insufficient to incapacitate the adult, could provide a source of infection to the eggs which she lays. The virus may be inside the egg or adsorbed onto the shell so that the newly hatched larvae infect themselves with their very first meal. No work has been published to support this idea, but a Russian, Tarasevich (1953) has described an anti-virus treatment for ova of *Bombyx mori* L. He showed that ova previously coated with polyhedra could be sterilized by treatment with 2% NaOH for one minute, followed by washing with running water for one hour and 96% spirit for 15 minutes. Later, he successfully substituted Potassium Permanganate for the spirit. I should mention that this treatment was for the ova of *Bombyx mori* L. and not many ova will withstand such treatment. It is also possible that latent virus is inherited, in which case, the only hope of elimination is by selective breeding. In-breeding is fraught with obvious hazards although I know of instances where countless generations have been bred from the original stock without difficulty. I have found it a good plan to rear the progeny of each female separately and destroy at once any batches which become unhealthy. All cages which have contained unhealthy larvae should be regarded as contaminated and thoroughly sterilized. Strong soda water may be adequate for this, although I can only recommend from experience, dry heat treatment at 120°C. for 1 hour. Acids, as well as alkalis, readily destroy viruses and this is worth remembering when it is necessary to sterilize contaminated glassware.

SUMMARY.

An attempt has been made here to bring the subject of insect viruses into perspective. There is room for research in this field by anyone interested in the biology of insects and I hope that I have communicated my own enthusiasm for the subject to the members of this Society.

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THE ZOOGEOGRAPHY OF THE BRITISH HEMIPTERA HETEROPTERA

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INTRODUCTION.

The last study of this subject was that of China in 1930; since then much more information on the distribution within the British Isles has been assembled by Bedwell (1945), Massee (1955) and Halbert (1935), whilst our knowledge of the overseas distribution of our species has been increased by the work of Stichel (1925-38), Wagner (1952, 1955) and others. Massee (1955) gives the county distribution of each species in England and Wales but Scotland and Ireland are considered as a whole; Halbert (1935) and Macan (1954) give details for the latter country. Thus it seems that a reconsideration of the available information in the light of the general principles outlined in the first section is not inappropriate.

GENERAL PRINCIPLES.

The distribution of any animal species at a given time is dependent on:—

i. The history of the species (its centre of evolution, etc.).
ii. Its ability for active dispersal and its liability for passive dispersal.
iii. Its ecological preferenda.

Its presence or absence in a certain area is a result of the interaction of the above factors with:—

i. The history of the area (e.g. its past climate, land connections with other areas).
ii. The ecological conditions of the area (its climate, flora and fauna).

The distribution of an animal is related to its abundance (Andrewartha & Birch, 1954) and in some years it may be absent from an area occupied at other times. Beirne (1952) distinguishes between "range" and "distribution". The range of a species is the whole geographical area over which individuals may be found; its distribution refers to the arrangement of populations within this area. Ecologists are primarily concerned with the distribution of a species within its range, but it is the task of the zoogeographer to determine how the five factors listed above have contributed through an ever changing distribution pattern to give the present-day range of the species.

It is useful to consider whether a species is absent from a certain area because:—

- *a* The climate of the area is unsuitable.
- *b* Its food (either animal or plant) is absent.
- *c* It cannot survive the attacks of the parasites and predators present in the area.
- *d* The area is separated from the country where the species evolved by large areas that are ecologically unsuitable—such areas are said to constitute barriers (oceans, mountains, and deserts are frequently barriers of this sort).
- *e* The species has recently evolved and has not yet reached the area in question.
- *f* The species is in competition with another closely allied species; as with the British hares (Matthews, 1952).

Occasionally in Britain (and elsewhere) a species has a strangely limited and often patchy distribution, whilst on the continent of Europe (or in other parts of its range) it is much more widespread. In general this occurs when a species is at the edge of its range and it may be that as postulated in *Butterflies* by Ford (1945) this is due to the British race becoming specialised as a result of selection to enable it to exist under the particular local conditions. Sometimes, as with the Swallow-tail Butterfly (*Papilio machaon* L.), the race is morphologically distinct, but often there is not any detectable difference. These localised colonies may be interpreted as arising on the advance fringe of a species or they may be relics or survivors from other climatic conditions.

THE RANGES OF THE BRITISH SPECIES.

When the Holarctic range of each species is considered those of the British species fall into five broad groups. These are somewhat similar to those used by Deville (1930) for the British Coleoptera.

1. Arctic-alpine type, corresponding to tundra vegetation and containing:—
    - *a* Boreal.
    - *b* Boreo-alpine.
    - *c* Boreo-montane.
    - *d* Alpine.
2. Siberian type (coniferous forest belt).
3. European type (deciduous forest belt).
4. Mediterranean type (xerophilous evergreen woodland belt) containing:—
    - *a* Wide (Central European and Mediterranean).
    - *b* Strict (Mediterranean only).
5. Atlantic type, containing:—
    - *a* Wide Atlantic.
    - *b* Southern Atlantic.

It is not possible to refer all the British species to one or other of these categories; but examples of each type are given. Naturally there is no sharp division between groups, each one grading into the next; e.g. Carvalho and Southwood (1955) have shown that throughout the world the members of the genus *Mecomma* Fieber occur amongst grassland at the edge of damp temperate deciduous woodlands, thus *Mecomma ambulans* Fallén has a distribution intermediate between the European and Siberian types.

1. *Arctic-alpine type*

a. BOREAL (ARCTIC). Species whose range outside the British Isles is confined to Norway, Sweden, Finland and North Russia; they may also occur in North Canada and Alaska.

Chlamydatus wilkinsoni Douglas and Scott, a mirid of short grasslands, occurs outside Britain mostly north of a latitude of 60° and has an extreme Arctic type of range (Fig. 1); it occurs as far east as Siberia, but is absent from Ireland. Another example is the marshland *Teratocoris viridis* D. & S. (Fig. 3). Both species belong to northern groups; the other member of the subgenus *Chlamydatus* sensu stricto, *C. saltitans* Fallén has the Siberian type of range. The five European species of *Teratocoris* all have the centres of their distribution north of a latitude of 50°; though Wagner (1955) has found *T. antennatus* Boh. in the Pyrenees. It is probable that the last time these species colonised Britain was during the first or second Glacial Phase of the Last Glaciation; for the Third Glacial Phase was comparatively mild in Western Europe.

Callicorixa wollastoni D. & S. is found in peaty habitats in England from Derbyshire northwards, in Wales, Ireland ("especially in upland districts"—Halbert 1935) and Scotland; this type of distribution suggests that it is a survivor from the glacial periods and its range abroad is of the boreal type: Scandinavia and north Russia; it is also recorded from Holland.

A most interesting type of distribution is shown by *Sigara fallenoidea* Hungerford; this corixid is found in Manitoba, Saskatchewan, round Great Slave Lake, north Canada, in central and western Ireland and on Heinaraset Isle in north Finland (Hungerford 1948, Macan 1954, China 1955). Macan has suggested that it may be spreading to Europe from north America and China that it is a relic of the American element of Scharff. Its presence in north Finland and in northern Canada seem to indicate rather that it is an arctic species, probably circum-polar in its distribution—at least in Pleistocene times, when it was more widespread. With the changes in climate (and perhaps the invasion of other species) *S. fallenoidea* has been able to survive only in Ireland, which is isolated from the rest of Europe, and in north Scandinavia and north Canada.

Fieberocapsus flaveolus Reuter (Fig. 14) and *Tytthus geminus* Flor are two species with wide boreal ranges in Europe, occurring in north Germany as well as Scandinavia and north Russia. Both these species and *Cyrtorhinus caricis* Fallén and *Tytthus pygmaeus* Zett. (which are also found in northern Central Europe) live amongst Juncaceae and Cyperaceae growing at the edge of pools or in bogs which are typically associated with sub-arctic moorland and present a striking case of convergence (Carvalho & Southwood, 1955).

b. BOREO-ALPINE. Species whose range consists of the Alps and northern Europe and Asia thus their continental population is isolated in two main geographical areas.

Dicyphus constrictus Boh. (Fig. 4) and *Lygus punctatus* Zett. have this type of range. During one of the glacial phases, probably the second of the last Glaciation, suitable conditions for these species extended right across Europe from Britain to the Alps. The later warmer conditions drove the species north in Europe until the northern (boreal) population was separated from that of the Alps. *Dicyphus constrictus* is found throughout Britain, many boreo-alpine species are, however, confined to northern and western Britain: from our limited knowledge this appears to be the case with *Lygus punctatus*. *Arctocorisa carinata* C. Sahlb. is almost confined to northern England and Scotland; in the Lake District it is found in "a few high peat pools". Abroad it is known from Scandinavia, Russia, Switzerland and the alpine regions of France and Germany. During the glacial phases similar ecological conditions to those of the high peat pools could be found right across Europe.

c. BOREO-MONTANE. This could equally well be described as the wide arctic-alpine type, for these species occur not only in the north of Europe and in the Alps, but also in the Pyrenees, the Caucasus and the mountains of Jugo-slavia, Albania and Greece. The wide range of *Calocoris alpestris* Meyer-Dür* (Fig. 2) from the Caucasus and Greece to south west England was probably achieved during the first or second Glacial phases of the last Glaciation. On the retreat of the ice sheet ecological conditions in the lowlands of central and southern Europe became unsuitable for it and the species was restricted to the mountains, in England to the Mendips, Cumbrians and Pennines; in Italy to the Alps, and Appennines (Mancini 1954) and elsewhere to the Ardennes, Alps, Dinaric Alps, Rhodope and Pindus Mts., the Caucasus and Carpathians. It may be that competition with the more widespread and abundant *C. norvegicus* Gmel. has restricted the range of *C. alpestris* in some way; as the Brown Hare (*Lepus europaeus* Pallas) restricts the range of the Blue Hare (*L. timidus* L.). The major food plant of both species of *Calocoris* is the Nettle (*Urtica dioica* L.) (Southwood & Scudder, 1956).

Mecomma dispar Boh., *Lygus wagneri* Remane, *Chlamydatus evanescens* Boh. and *Elatophilus nigricornis* Zett. are other species with a boreo-montane range and a mainly northern distribution in Britain;

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*Carvalho (1955, *Beit. Ent.* **5** : 333) has shown that this species should really be known as *Calocoris major* Schilling.

though in the case of the last-named species its British range has recently altered (see p. 121). Other boreo-montane species, e.g., *Dicyphus stachydis* Reuter, *Psallus luridus* Reuter, *Aneurus laevis* F. and *A. avenius* Dufour, are more widely distributed in Britain. *Psallus alnicola* D. & S., a boreo-montane mirid living on alder (*Alnus glutinosa* (L.) Gaertn.), is found in northern U.S.A., as well as in Britain, Sweden, Finland, Germany, Austria and Czechoslovakia.

d. ALPINE. Species whose range outside Britain is confined to the Alps. As Beirne (1952) has said this element of our fauna is small and *Cryptostemma alienum* H.-S. is the only example in the Heteroptera (Fig. 8). Beirne (1952) considers that the Mountain Ringlet Butterfly (*Erebia epiphron* Knoch) invaded Britain during the First Glacial Phase of the last Glaciation; this was the most suitable period for the colonisation of Britain by alpine species and *C. alienum* probably arrived then. It lives amongst the gravel at the margins of rapid mountain streams; in lowland England it is found in Hampshire where such conditions are produced in the streams of the New Forest. In Italy it is confined to the mountainous areas of the north and centre, where such rapid streams are found (Mancini, 1954). It may be the absence of such conditions in the plains of north Holland, Germany, Poland and the Baltic Land that prevented this species extending its range to the mountains of Scandinavia.

2. *Siberian type*.

In contrast to the boreo-montane species those of the Siberian element usually have a continuous distribution from western Europe to eastern Asia, furthermore they are often absent from the Alps. In the Heteroptera they fall into three main groups dependent on their association with the main vegetation types of this area: conifers; birch; moorland and bog (willows, grasses and freshwater). *Acompocoris alpinus* Reuter (Fig. 5) is attached to Scots Pine (*Pinus sylvestris* L.) and other conifers; in Britain it was until recently confined to northern England and Scotland and its range in Eurasia largely follows the belts of coniferous and mixed forests.

Plesiodema pinetellum Zett. *Atractotomus magnicornis* Fallén and *Orthotylus fuscescens* Kirsch. are other species attached to conifers and with a Siberian range. *Elasmucha grisea* L. and *Kleidocerys resedae* Panz. are two birch (*Betula*) feeding species with a Siberian range, though the latter has recently been found in the Pyrenees (Wagner, 1955).

Orthotylus virens Fallén (Fig. 2) is an example of the moorland and bog species, it is confined to Bay Willow (*Salix pentandra* L.) a creeping shrub of upland marshes and woods. In Britain it is only known from northern England, but no doubt it will be found in Scotland. Other species are attached to the moorland grasses, *Stenodema holsatum* F. (Fig. 6) for instance. This species is especially attached to *Molinia caerulea* (L.) Moench. and in Britain is probably the commonest

Stenodema species in northern England and Scotland, in the south it is much rarer and it is absent from the extreme south-east (Kent, Middlesex, Essex, Herts.). It is recorded from Italy, but here too it is mostly found in the mountain regions (Mancini, 1955). *Teratocoris saundersi* D. & S. (Fig. 7) and *Chlamydatus saltitans* Fallén (Fig. 1) are other grassland species and *Cyrtorhinus caricis* Fallén and *Tytthus pygmaeus* Zett. (already mentioned (p. 114)) are bog species with a Siberian range.

3. *European type.*

Perhaps the majority of our Heteroptera have this type of range, which is associated with deciduous temperate woodlands. *Tingis cardui* L. (Fig. 9), *Lygus rugulipennis* Poppius, *Palomena prasina* L. and *Anthocoris nemorum* L. are some species which have the widest type of range, they are distributed throughout the British Isles north into Scandinavia, south to north Africa and east to Siberia and Manchuria. Such a range could perhaps be best described as the wide Palaearctic type, for it includes the ranges of the Siberian and Mediterranean elements as well.

A more restricted type of range is shown by *Tingis ampliata* H.-S. (Fig. 10), *Oncochila simplex* H.-S., *Campylosteira verna* Fallén, *Oncotylus viridiflavus* Goeze, *Tinicephalus hortulanus* Meyer-Dür and *Macrotylus solitarius* Meyer-Dür; species which are confined to southern Britain and range across central and/or southern Eurasia.

Especially interesting are those species which are widely distributed in Europe (and Asia), but in Britain have a greatly restricted range. *Pyrrhocoris apterus* L. and *Lasiacantha capucina* Germ. (Fig. 11) are examples; in Britain the only known colony of the former is on the small island of the Oarstone Rock in Tor Bay, Devonshire, where the bugs are attached to the Tree Mallow (*Lavatera arborea* L.) (Massee, 1954a), but there are also old records from Wales. On the Continent *P. apterus* L. feeds on all the members of the Malvaceae and certain other plants. In Britain *L. capucina* Germ. is confined to Wild Thyme (*Thymus serpyllum* agg.) growing on the cliffs at and near the Lizard, Cornwall; it is also confined to this host plant in Europe. As both species are so widespread and common in Europe and their host plants are found throughout much of Britain, the reason for their limited distribution in this country must be zoogeographical rather than ecological. Both these species are confined to southwest, rather than south-east Britain; the probable explanation is that during the glacial periods their British populations were driven south into the extreme south-west and on to the now submerged Celtic land, these small colonies became modified in some way (see p. 119) and on the return of warmer conditions they were unable to spread northwards again. It is noteworthy that both these species are always brachypterous (and so unable to fly) in Britain, but this is also the commonest condition on the continent and they both occur in Jersey. (Le Quesne, 1953). If the above explanation is correct it would not be surprising if careful studies showed that the British populations of these species are subspecifically distinct from those of the continent.

Some species are confined to the extreme south-east of Britain, as are *Psallus albicinctus* Kirsch. and *Nabis brevis* Scholtz, both of which have a typical European range. In contrast to the Celtic land survivors these species are recent arrivals in Britain from the continent of Europe, probably just before or even after the land connection was lost; for some reason they have been unable to spread further. It may well be that *Nabis pseudoferus* Remane will be found to have a similarly restricted British range (Southwood & Remane, 1956) and if *Jalla dumosa* L. did however occur in Britain as was at one time alleged (Douglas & Scott, 1865) it would be a further example. *Henestaris halophilus* Burm. (Fig. 12) is found throughout central Europe and yet in England it is only known from Cornwall and Kent. This species is probably a more recent arrival than the Mediterranean *H. laticeps* Curt., the possibility that competition with this species is preventing its spread must be considered. Leston (1956) has recently suggested that the specimens of *Gerris rufoscutellatus* Latreille that are found in south-eastern and eastern England are immigrants from the continent, the species being unable to breed in this country. Also noteworthy is the absence from Britain of certain species, widespread and abundant on the continent. Frequently they are members of a pair of closely allied species; only one member of the pair is present in Britain and it can be considered that this species has been present in Western Europe longest, the other species arriving more recently. Examples are *Nysius thymi* Wolff (British) and *N. ericae* Schilling; *Heterocordylus tibialis* Hahn (British) and *H. leptocerus* Kirsch.; *Palomena prasina* L. (British) and *P. viridissima* Poda.

4. *Mediterranean type.*

Species whose range outside Britain is confined to the Mediterranean and Middle East (strict type) or to this area and central Europe (wide type).

Henestaris laticeps Curt. (Fig. 12) is one of the most striking examples. Here it is found along the south coast and in S. Wales; outside Britain this salt marsh Lygaeid is confined to Jersey (Le Quesne 1953), south-west France and the Mediterranean basin, occurring as far east as Cyprus (Lindberg, 1948) and Egypt (Priesner & Alfieri, 1953). *Adelphocoris ticinensis* Meyer-Dür (East Anglia and southern England), and *Dichrooscytus valesianus* Meyer-Dür (Bucks, Surrey and Sussex), *Tingis angustata* H.-S. (Herts., Essex, Kent and Sussex) and *Microvelia pygmaea* Dufour (east and south England) are four other species whose range outside Britain is confined to the Mediterranean basin. At the end of the Boreal period and during the Atlantic period of the Post Glacial Era when the climate of Europe was warmer than it is now, the ranges of these species probably extended further north than they do at present. The British populations which were then within the normal range have been able to survive either because, being isolated from those of the continent, they were able to become modified genetically and so specialised in some way (see p. 112 and *Gonocerus* below) or because they can still survive the ecological conditions in certain parts of this country.

Gonocerus acuteangulatus Goeze is another Mediterranean species, in Britain it is confined to Box Hill, Surrey, where it has become specialised, feeding only on Box (*Buxus sempervirens* L.); on the continent it has several host plants, such as *Corylus* and *Juniperus*.

A large number of species have a wide Mediterranean type of range, e.g. *Arenocoris waltli* H.-S. (Fig. 13) and most other Coreids, the Cydnids *Aethus flavicornis* F. and *Geotomus punctulatus* Costa, the Pentatomids *Sciocoris cursitans* F. and *Odontoscelis* spp., Lygaeids such as *Aphanus rolandri* L., and the Nabid *Prostemma guttula* F. The ranges of these species in Britain are limited to the south-east and within this area their distribution usually coincides with sandy or chalk soil. All these species are ground dwellers and thus they are influenced by the climatic properties of the soil. Penth (1952) has studied the temperature preferenda of several of these species and there is no doubt that, as would be expected from their range, they are strongly thermophilous. Lindroth (1949) found that limestone alters the microclimate in an oceanic direction, having high minima, the properties of chalk are said to be similar (Allee et al. 1949); Johnson & Davies (1927) and Lindroth (1949) have shown that sandy soil heats up very rapidly and this type gives the highest maxima; a clay soil is the coldest type. In the Mediterranean these species are found on a variety of soil types and their restriction to sand and/or chalk in this country is due more to the microclimate of these soils than to any direct dependence. British collectors have noted that certain Heteroptera, notably Cydnids and Coreids, are especially common on cindery ground (Southwood & Hine 1950, Woodroffe 1955), in my opinion this is a reflection of the extremely warm and xerophilous type of micro-climate in such a habitat. Richards & Waloff (1954) have drawn attention to a similar situation in the Orthoptera, where species occupying chalk hillsides in Southern England occur in totally different situations in Central Europe.

Another feature of the distribution of Mediterranean species in Britain is a restriction to coastal districts, e.g. *Odontoscelis fuliginosus* L., whilst in Central and Southern Europe the species is by no means maritime. In this case it is probably the high insolation on the coast that is important.

Cymus melanocephalus Fieber (Fig. 14), a wide Mediterranean species, is found on *Juncus* in the southern half of England and also in Wales (Scudder 1956); it is associated with this host plant throughout its range which extends to Turkestan. At Hounslow in Middlesex this species can be collected alongside *Fieberocapsus flaveolus* (Woodroffe 1953a, 1954a), but the latter has a wide boreal range and thus in Russia the two species are separated by over 500 miles (Fig. 14). This is an example of the great intermingling of various faunal elements in

Britain. Other Mediterranean species found in or recorded from Britain include *Dictyonota fuliginosa* Costa, *Megacoelum beckeri* Fieber, *Deraeocoris olivaceus* F., *Capsodes flavomaculatus* Don., and *Hadrodemus m-flavum* Goeze; all are confined to south-east England.

Metapoplax ditomoides Costa has recently been found in Britain (Woodroffe 1953b) and in Holland (Reclaire 1948); it is also found in Jersey, western and southern France, Iberia and the western Mediterranean (Fig. 20). This type of range is intermediate between the Mediterranean and the Southern Atlantic type which is described below.

5. *Atlantic type.*

Species whose ranges are confined to the west of Europe; in many cases (Southern Atlantic type) extending no further north than France or the Low Countries. *Orthotylus adenocarpi* Perris (Fig. 16) has a wide southern Atlantic range, north to Schleswig-Holstein, east to the Main valley (Wagner, 1952), and south to Morocco. *Orthotylus ochrotrichus* Fieber (Fig. 16) has a more restricted range; outside Britain it is only known from Jersey (Le Quesne, 1953), Iberia and Morocco, yet in southern England it is widely distributed and abundant on Nettle (*Urtica dioica* L.) and Elm (*Ulmus* sp.). *Capsodes sulcatus* Fieber (Fig. 17) and *Taphropeltus limbatus* Fieber have a similar type of range, but in Britain they are rather more restricted to the south. *Pachylops bicolor* D. & S. (Fig. 17), is quite common in southern England, but abroad it is known only from western France; it is confined Gorse (*Ulex europaeus* L.) which is native only in western Europe. The water-bug *Sigara venusta* D. & S. has a range similar to that of *O. adenocarpi* (Fig. 16) and the shore bug, *Aëpophilus bonnairei* Signoret is found off the coast of Ireland, the Isle of Man, Isle of Wight, Wales, Dorset, Devon, Cornwall, west and south-west France and the Atlantic coasts of Spain and Morocco. All these species are essentially southern and during the periods of maximum glaciation they survived on the now submerged Celtic land, recolonising the adjacent parts of Britain and France on the return of warmer conditions. Such species are sometimes referred to as the Lusitanian element of the fauna; very often, however, this term is restricted to species whose British range is confined to the extreme south-west and more especially to those species found only on the Lizard, Cornwall and in Iberia. This type of range is not known in any Heteropteran, but *Myrmedobia bedwelli* China is only known from the cliffs at the Lizard, *M. inconspicua* D. & S. from the south and east of England and the Channel Isles and the Lace-bug *Physatocheila harwoodi* China from Dorset. The first and last are no doubt survivors from the Celtic land and *M. inconspicua* from there and probably the Channel land as well.

The Oak mirid, *Phylus palliceps* Fieber, has a very restricted Atlantic range (Fig. 18). In Britain it is quite common, but in Germany it is rare and has only been found in four localities (Wagner, 1952); it is found on *Quercus* along with the closely allied *P. melanocephalus* L., which has a European and Mediterranean type of range. It is probable that *P. palliceps* was present before the last Glaciation and that populations survived on the Celtic land (as evidenced by its presence in southern Ireland) and on the Dogger Land, suggested by Beirne (1952). *P. melanocephalus* evolved in isolation from *P. palliceps* and invaded western Europe at a later date, probably during the long warm Second Interglacial phase.

The wide Atlantic type of range is found in the grass mirid *Acetropis gimmerthali* Flor (Fig. 15), which occurs as far east as Kaluga in Russia (Kirichenko, 1951).

CHANGES IN DISTRIBUTION AND RANGE.

It is only in groups which have many devotees, such as birds and Lepidoptera, that changes over a large amount of time can be studied with confidence. With the Heteroptera, collectors are so few and mostly concentrated in south-east England that extreme caution must be exercised, nevertheless definite trends can be seen in certain species.

Species decreasing.

Some species listed as British by Douglas & Scott (1865) and Saunders (1892), have not been taken this century. It seems certain that, although they may be re-discovered in northern England or Wales, they are now extinct in southern England. *Pitedia juniperina* L., formerly local on Juniper on the Surrey downs; *Carpocoris fuscispinus* Boh., recorded six times from Devonshire, once from Cornwall and also from Essex (possibly an immigrant); *Prostemma guttula* F., two records from Kent prior to 1865, one from Lancashire and a doubtful one from Caernarvon, and *Lygocoris limbatus* Fallén recorded from Wimbledon Common in 1880, are probably the best examples; but it is only with *P. juniperina* that we have any definite evidence that sizeable colonies existed in areas where the bug can no longer be found.

Species increasing.

Certain Heteroptera considered rare even by Butler (1923) are now relatively common throughout south-east England. The Pentatomid *Stollia fabricii* Kirk. (Fig. 22) is said by Butler (1923) to be "usually rare", although he remarks that it is more abundant in some years than in others; 1877, 1900, and especially 1903 are cited. Since 1945 there appears to have been a general increase throughout south-eastern England and its range extends as far north as Lincolnshire; in this area it is commonly found in very large numbers on clumps of its host plant, *Stachys sylvatica* L.

Only three or four British specimens of *Bathysolen nubilus* Fallén were known to Butler, all collected before 1903 in Kent or Norfolk. In 1945 it was re-discovered in Kent by Dicker (1945) and Massee

(1954b); it is now known from eight localities in that county, from Essex, Suffolk and Buckinghamshire (Woodroffe, 1954b). It is always associated with the common *Medicago lupulina* L. growing on sparsely covered soil, especially chalk, sand or cinder; in these situations the daily temperature will be higher (see p. 118).

Campylomma verbasci Meyer-Dür was first taken in Britain in 1937 (Thomas, 1938b), it is now known from Middlesex, Herts., Kent and Essex (Southwood, 1950, 1954a) and is said to be "common on apple and Oak in Kent and Essex" (Massee, 1954b). *Metapoplax ditomoides* Costa (p. 119) and *Deraeocoris olivaceus* (F.) have recently been added to the British list and are probably extending their range.

All these species have southern European distributions and de Worms (1956) has recorded that several Lepidoptera with similar distributions have increased their ranges in the same way. This may possibly be correlated with the high average summer temperatures that have occurred in England between 1940 and 1950, the highest for over 100 years; the next highest peak being in 1840 (Lewis, 1950).

Another species that has increased is *Ischnodemus sabuleti* (Fallén). Scudder (1957) has shown that there are two geographical subspecies: *quadratus* Fieber with a Mediterranean range (England, S. France, Corsica, Italy, Jugoslavia, Turkey, Rumania, Czechoslovakia and Greece) and *sabuleti* Fallén with a modified Siberian range (Ireland, England, Germany, Sweden, Belgium, Czechoslavakia, Denmark and Finland). *I. sabuleti quadratus* has only been found in Britain, at Folkestone; all other British examples are *I. s. sabuleti*. Butler (1923) only knew of five records of *I. sabuleti*, all in the nineteenth century. Since 1940, however, the species has been taken quite frequently (Southgate & Woodroffe, 1951; Leston, 1951a; Massee, 1954b) and is extending its range (Massee, 1955; Southwood, 1954b) (Fig. 19); Woodroffe (1954a) records such numbers of flying macropters that they formed a "haze" over the swamps in Hounslow Heath.

Several Heteroptera associated with conifers have also extended their ranges considerably in the last thirty years and this can, no doubt, be associated with the large scale planting of conifers in southern England. *Elatophilus nigricornis* Zett. (Fig. 21) formerly known only from Scotland (Butler, 1923) is now found in much of south-east England (Massee, 1955; Sands, 1954). *Plesiodema pinetellum* Zett. was also formerly confined in the British Islands to the north, in this case to northern England, as well as Scotland; but now it is quite common in seven southern counties (Massee, 1955). Both species were first found in the south in Hertfordshire, in 1935 and 1936 respectively (Thomas, 1938a).

Whether the south of England was colonised by individuals from the Scottish or from the continental populations of these species cannot be said, but that the latter is by no means impossible is indicated by the recent addition to the British list of three Heteroptera associated with conifers. *Aradus cinnamomeus* Panz. was first recognised in

Britain in 1950 (Leston, 1951), it is now quite common on young pines (*Pinus sylvestris* L.) in southern England; Massee (1955) records it from Bucks., Berks., Surrey and Hants., and Woodroffe (1955) from Dorset *Alloeotomus gothicus* Fallén was also first taken in Surrey in 1950 (Massee, 1952; Leston, 1952); it is now recorded from Suffolk, Kent, Hants. and Sussex as well (Massee, 1952, 1955; Woodroffe, 1956b) Recently *Pilophorus confusus* Kirschbaum has been recorded from Britain (Woodroffe, 1956a), specimens were found on pine at Virginia Water, Surrey; however, this species is not normally attached to conifers. Also three species of Lepidoptera, attached to conifers, have also been added to the British list since the war.

METHODS OF DISPERSAL.

It is appropriate to consider how these changes in distribution occur, how a species is able to get to a new area. Beirne (1952) states that most dispersal must be overland and that transport by air currents can play but a small part. I consider that except in brachypterous species, e.g. *Pyrrhocoris apterus* L. in Britain, aerial transport is the major method of dispersal in the Heteroptera.

Once a small insect becomes airborne on a hot day the upward convection currents are such that it can easily reach a considerable height and then be carried in horizontal winds. There is little published evidence to show the extent to which Heteroptera fly, but Glick (1939) captured a number of Heteroptera in the upper air in the U.S.A., and Johnson & Southwood (1949) caught 42 specimens representing ten species in balloon nets between 50 and 3,000 ft. above ground in Bedfordshire. I have identified the Heteroptera from a large number of suction trap catches and have found 82 species, representing the families Aradidae, Lygaeidae, Piesmidae, Tingidae, Nabidae, Anthocoridae, Microphysidae, Miridae and Saldidae (Southwood, 1956). Further information can be gained from light trap catches, but these are probably biased, catching an excessively large number of Miridae. Thomas (1938a) gives data from the Rothamsted Light Trap for the years 1933-6 and I have identified the Heteroptera taken in the years 1946-9 and also specimens from certain ultra-violet traps, which seem to attract larger numbers of the aquatic Corixidae (Brown, 1953; Southwood, 1956).

These results show that many, probably most, species of Heteroptera fly much more frequently than is generally realised and as Woodroffe (1954a) observed with *Ischnodemus sabuleti* Fallén large numbers may fly during one day.

The only other important method of dispersal is by man; *Tenthecoris bicolor* Scott, *Campylomma nicolasi* Reuter, and *Nezara viridula* L. are species that have been introduced into Britain with plants or agricultural produce, none of them have become established. It is possible however, that some of the recently discovered conifer species (see p. 121) were introduced into Britain on nursery stock.

ACKNOWLEDGMENTS.

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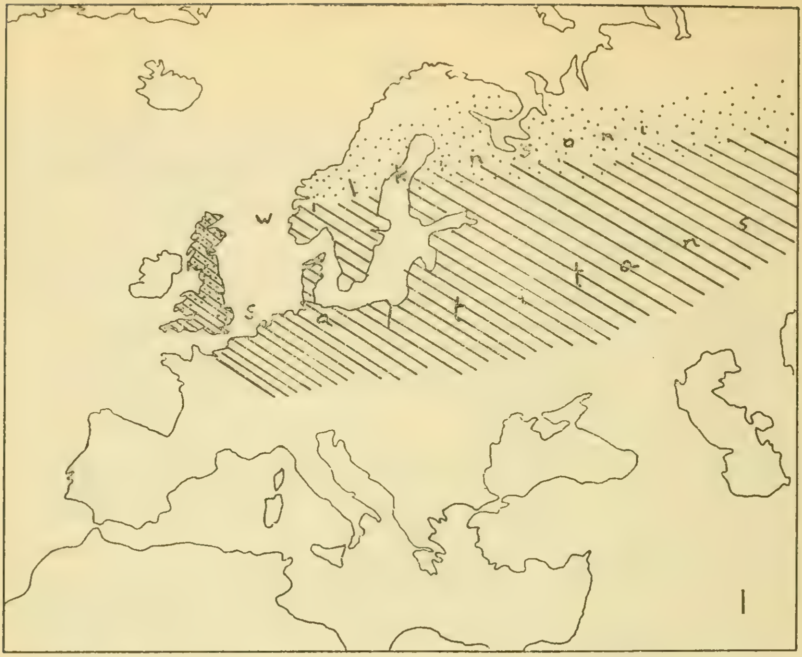


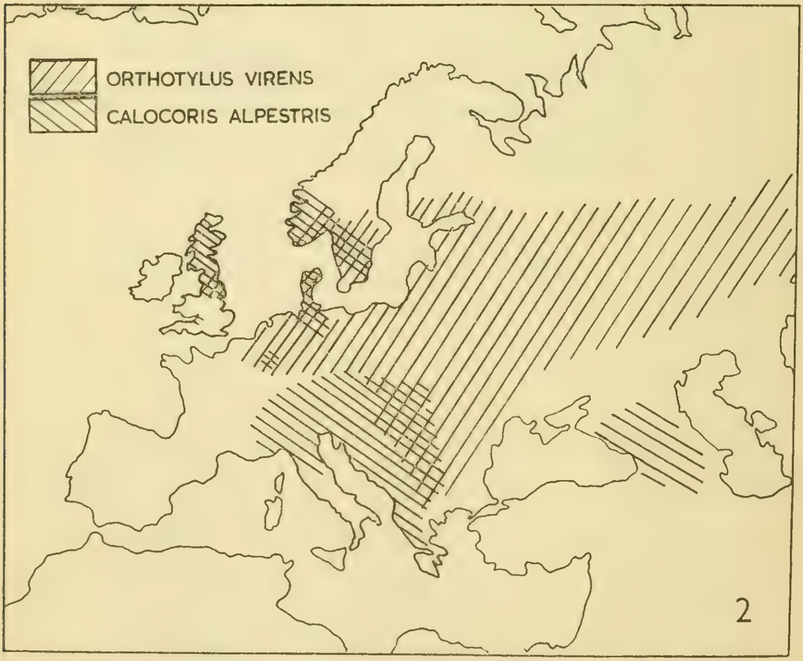
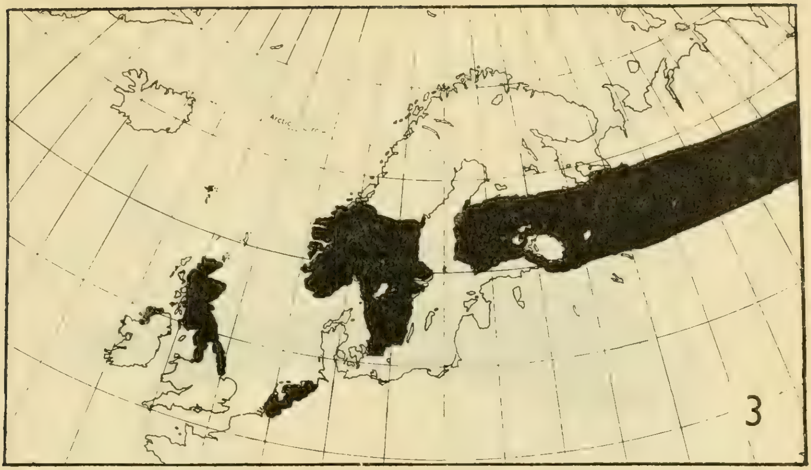


Fig. 1. Distributions of *Chlamydatus wilkinsoni* D. & S. (Boreal) and *C. saltitans* Fallén (Siberian).

Fig. 2. Distributions of *Calocoris alpestris* M.-D. (Boreo-montane) and *Orthotylus virens* Fallén (Siberian).



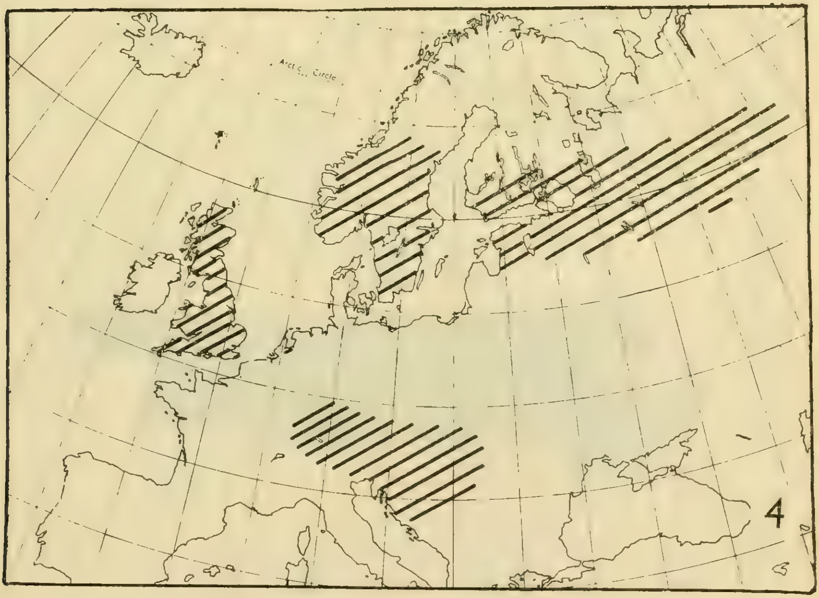
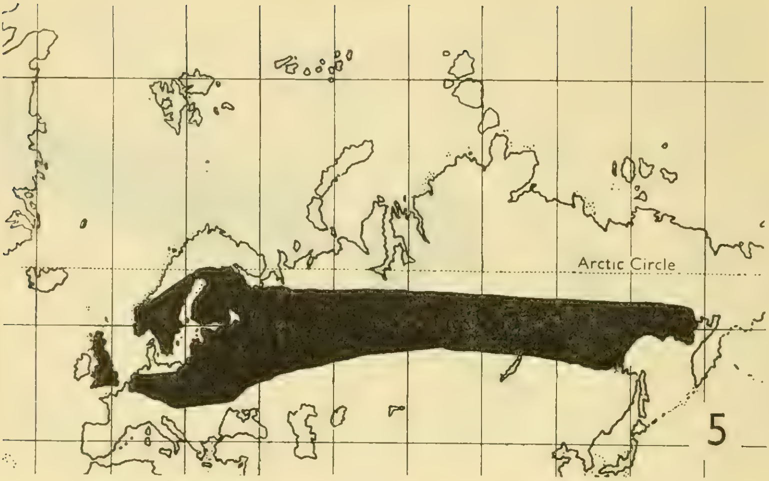


Fig. 3. Distribution of *Teratocoris viridis* D. & S. (Boreal).
Fig. 4. Distribution of *Dicyphus constrictus* Boheman (Boreo-alpine).



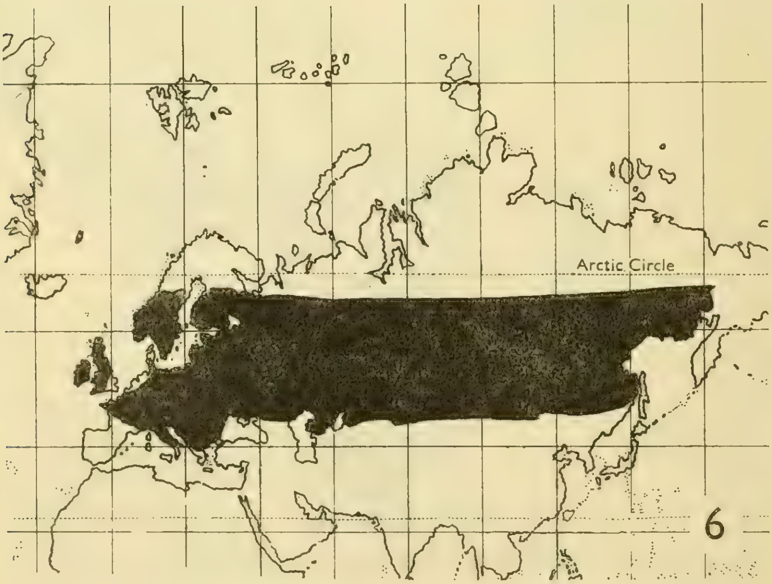
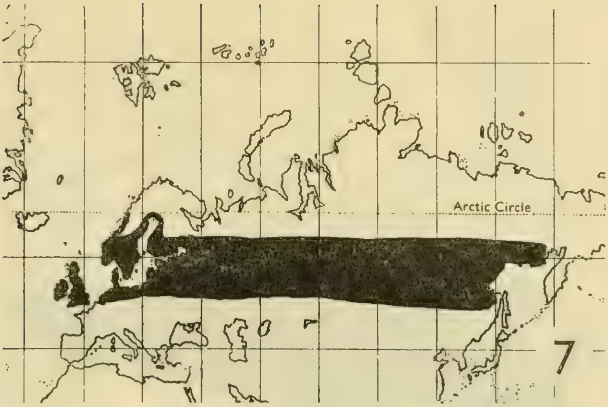


Fig. 5. Distribution of *Acompocoris alpinus* Reuter (Siberian).
Fig. 6. Distribution of *Stenodema holsatum* F. (Siberian).



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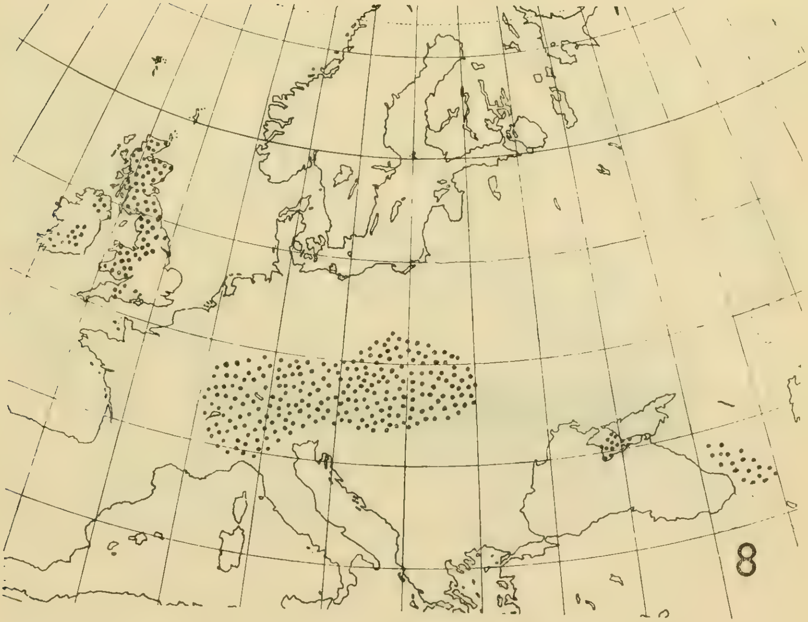

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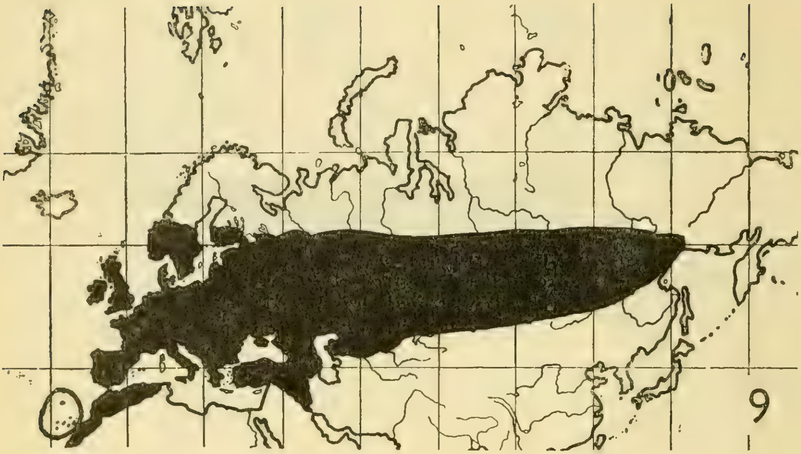
Fig. 7. Distribution of *Teratocoris saundersi* D. & S. (Siberian).
Fig. 8. Distribution of *Cryptostemma alienum* H.-S. (Alpine).



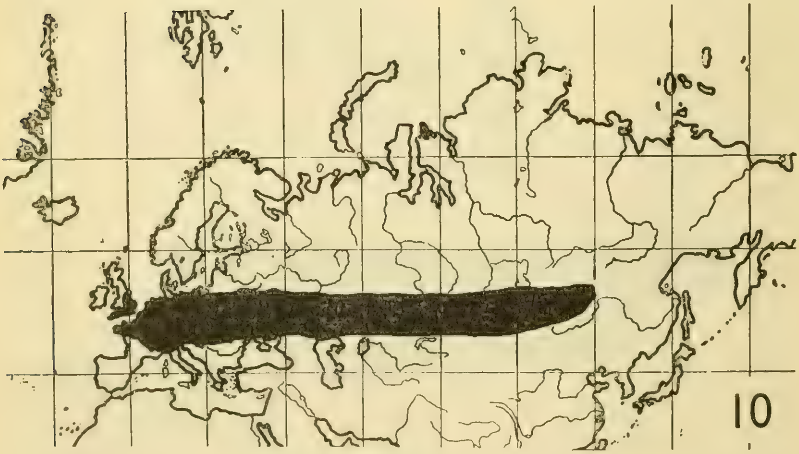
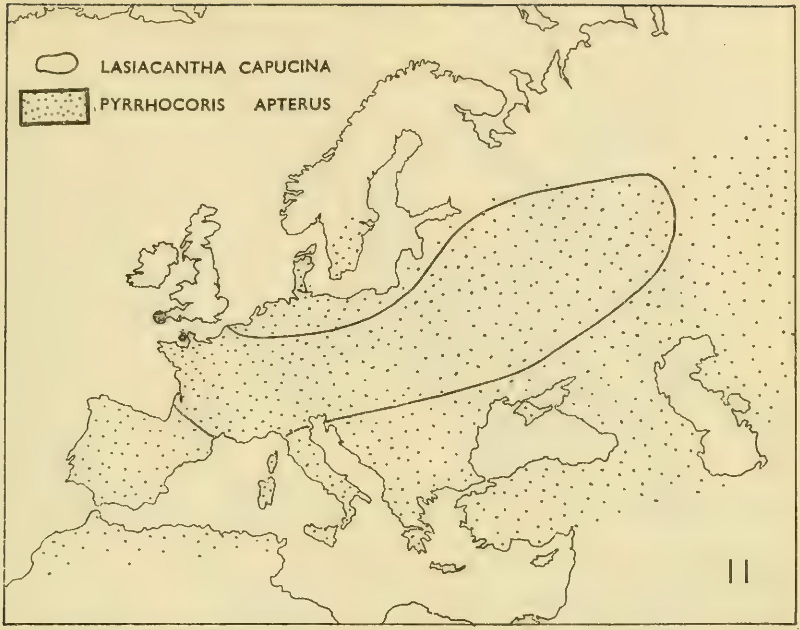


Fig. 9. Distribution of *Tingis cardui* L. (European—wide).
Fig. 10. Distribution of *Tingis ampliata* H.-S. (European).



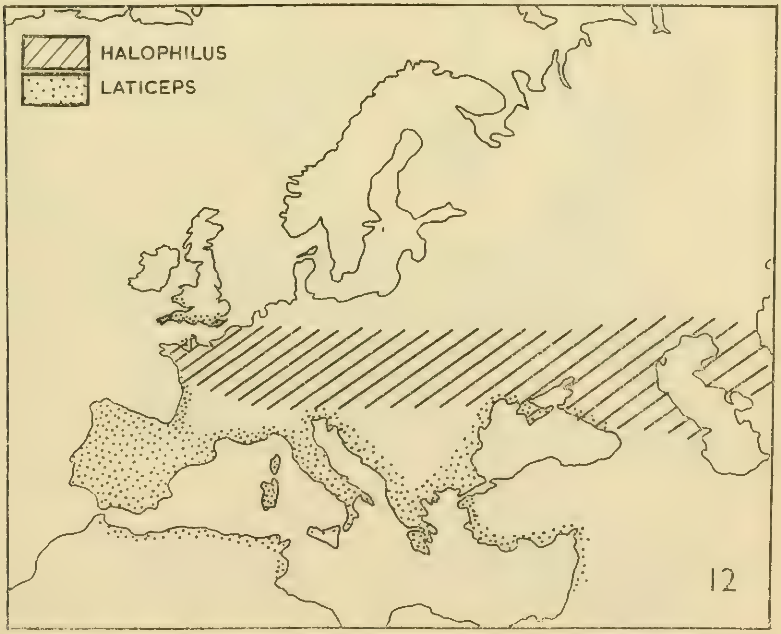
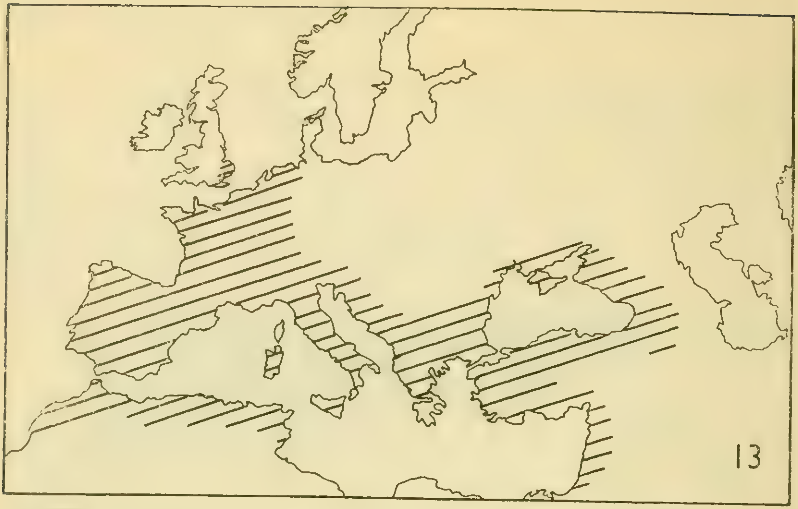


Fig. 11. Distribution of *Lasiacantha capucina* Germar and *Pyrrhocoris apterus* L. (European)—species in Britain confined to the south-west.

Fig. 12. Distributions of *Henestaris halophilus* Burm. (European) and *H. laticeps* Curtis (Mediterranean).



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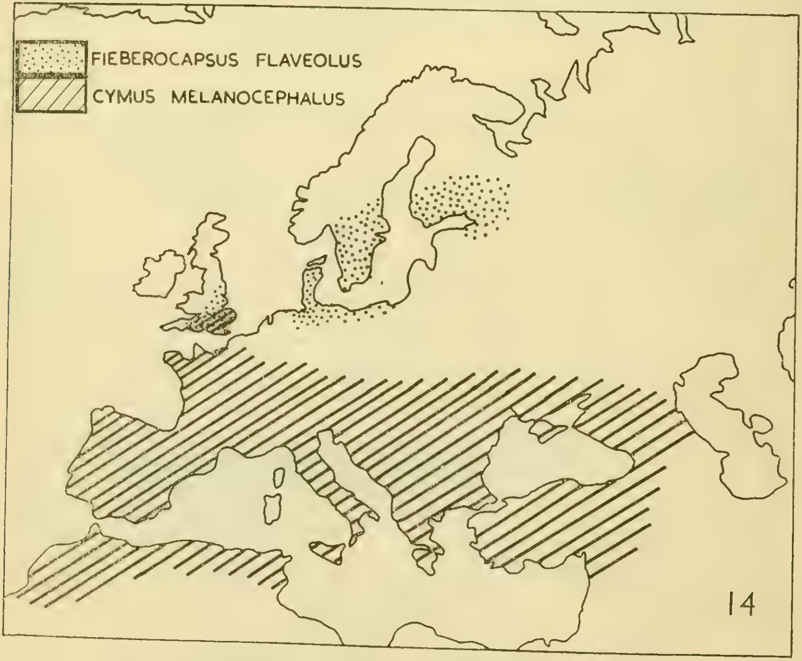

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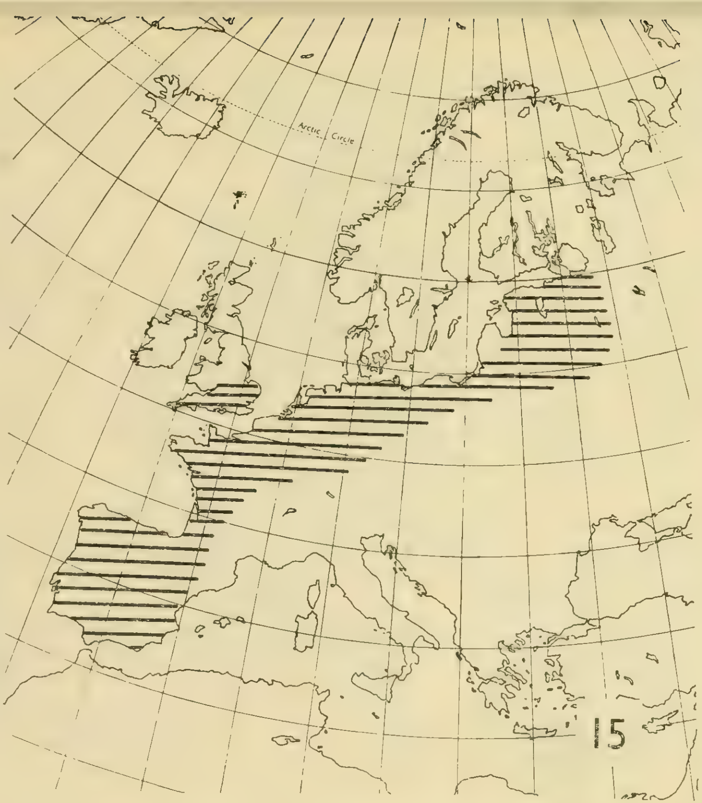
Fig. 13. Distribution of *Arenocoris waltli* H.-S. (Wide Mediterranean).

Fig. 14. Distributions of *Fieberocapsus flaveolus* (Reuter) (Boreal) and *Cymus melanocephalus* Fieber (Wide Mediterranean)—species found together in S.E. England.



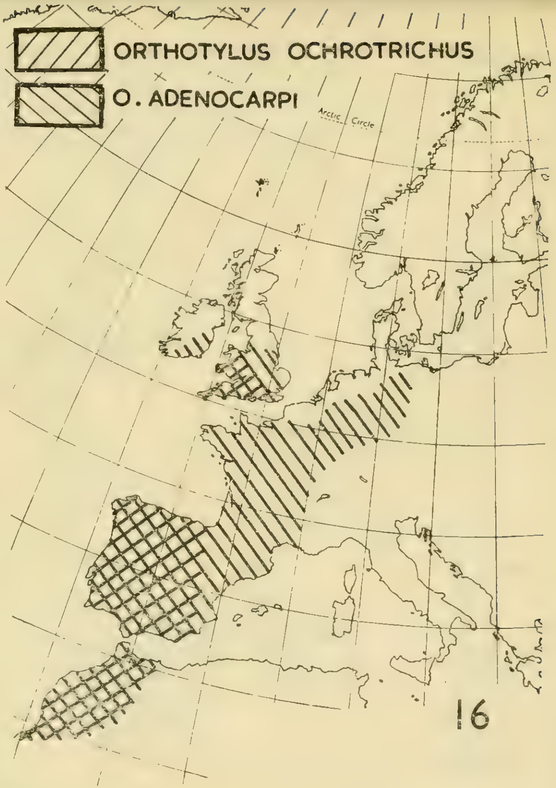
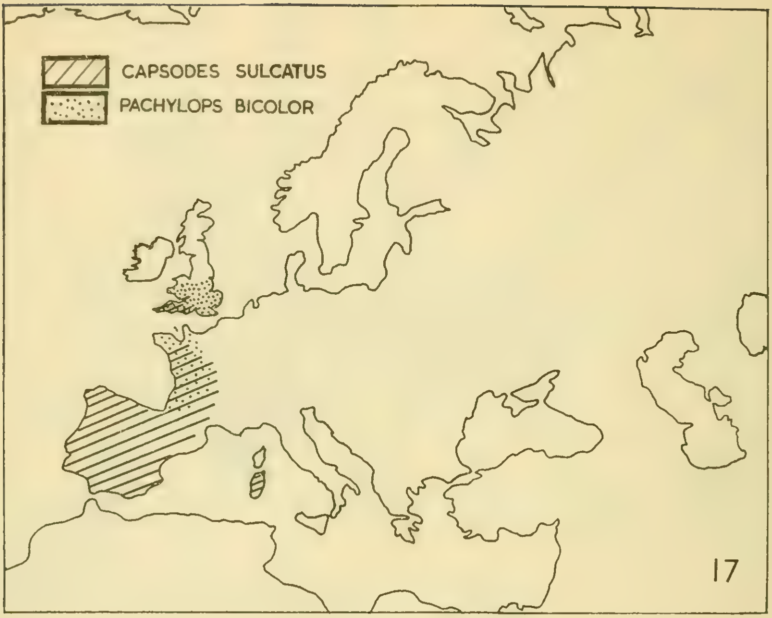


Fig. 15. Distribution of *Acetropis gimmerthali* Flor (Wide Atlantic).

Fig. 16. Distributions of *Orthotylus ochrotrichus* Fieber and *O. adenocarpi* Perris (Atlantic).



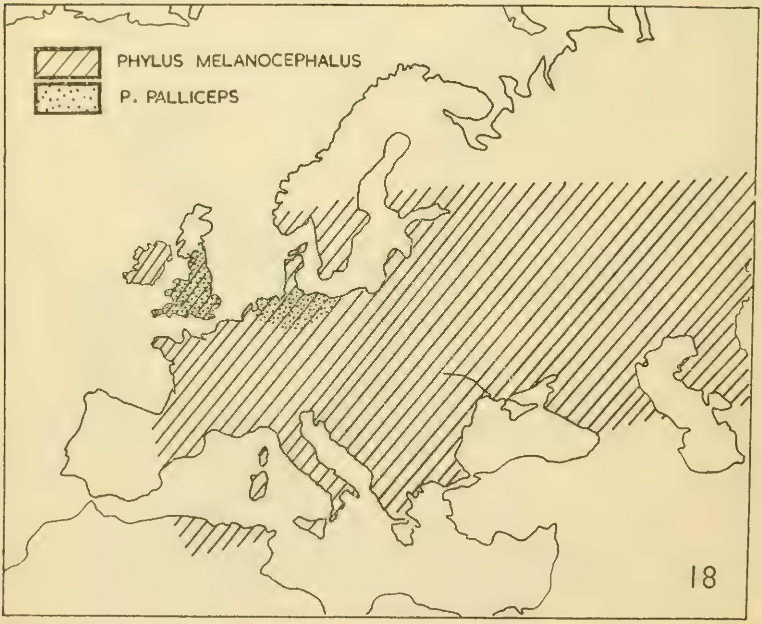
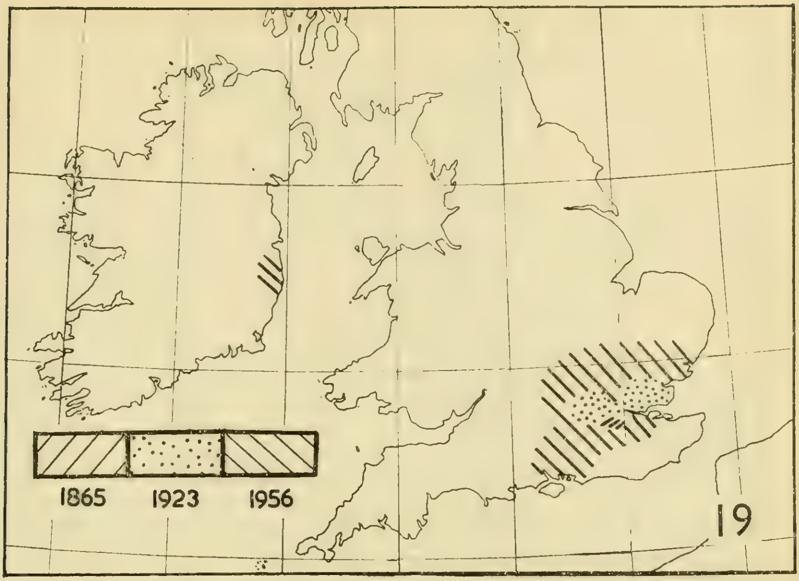


Fig. 17. Distributions of *Capsodes sulcatus* Fieber and *Pachylops bicolor* D. & S. (Southern Atlantic).

Fig. 18. Distributions of *Phylus palliceps* Fieber (Atlantic) and *Phylus melanocephalus* L. (Wide European).



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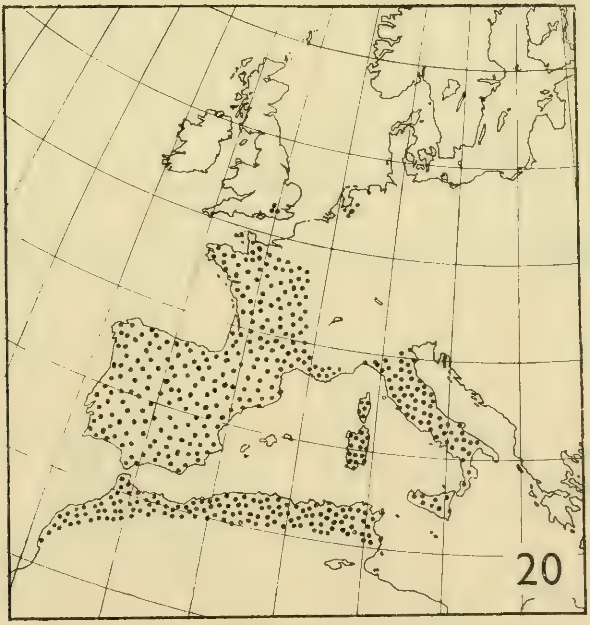

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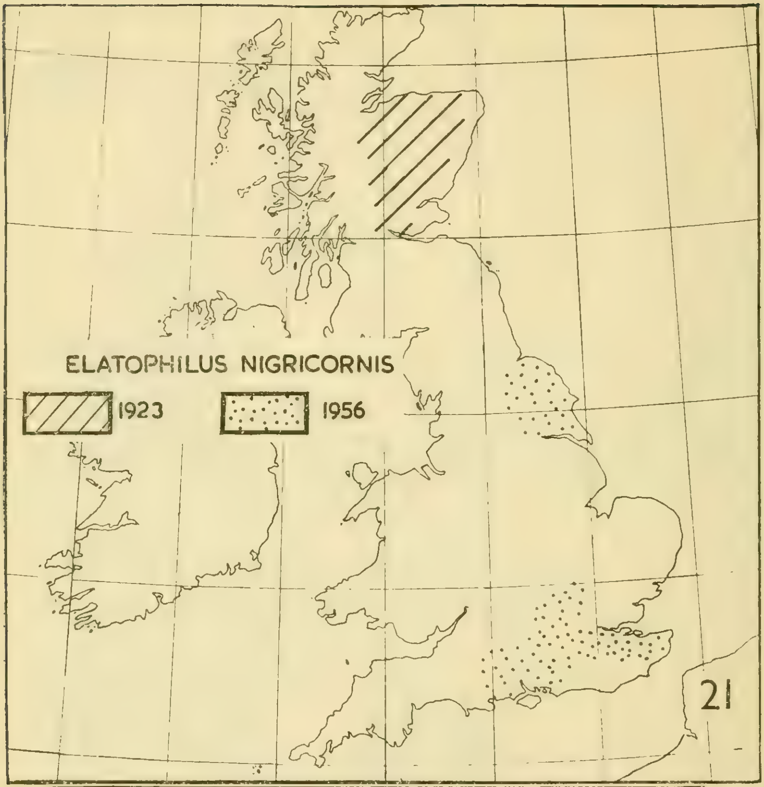
Fig. 19. Increase in range of *Ischnodemus s. sabuleti* Fall. in Britain.
Fig. 20. Distribution of *Metapoplax ditomoides* (Costa).



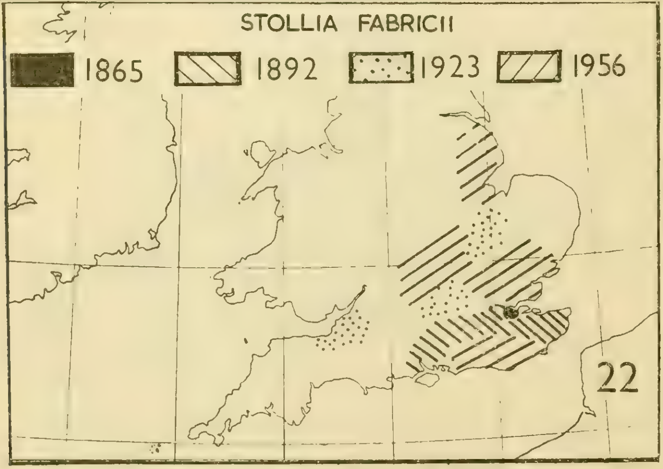


Fig. 21. Increase in range of *Elatophilus nigricornis* Zett. in Britain.
Fig. 22. Increase in range of *Stollia fabricii* Kirk. in Britain.

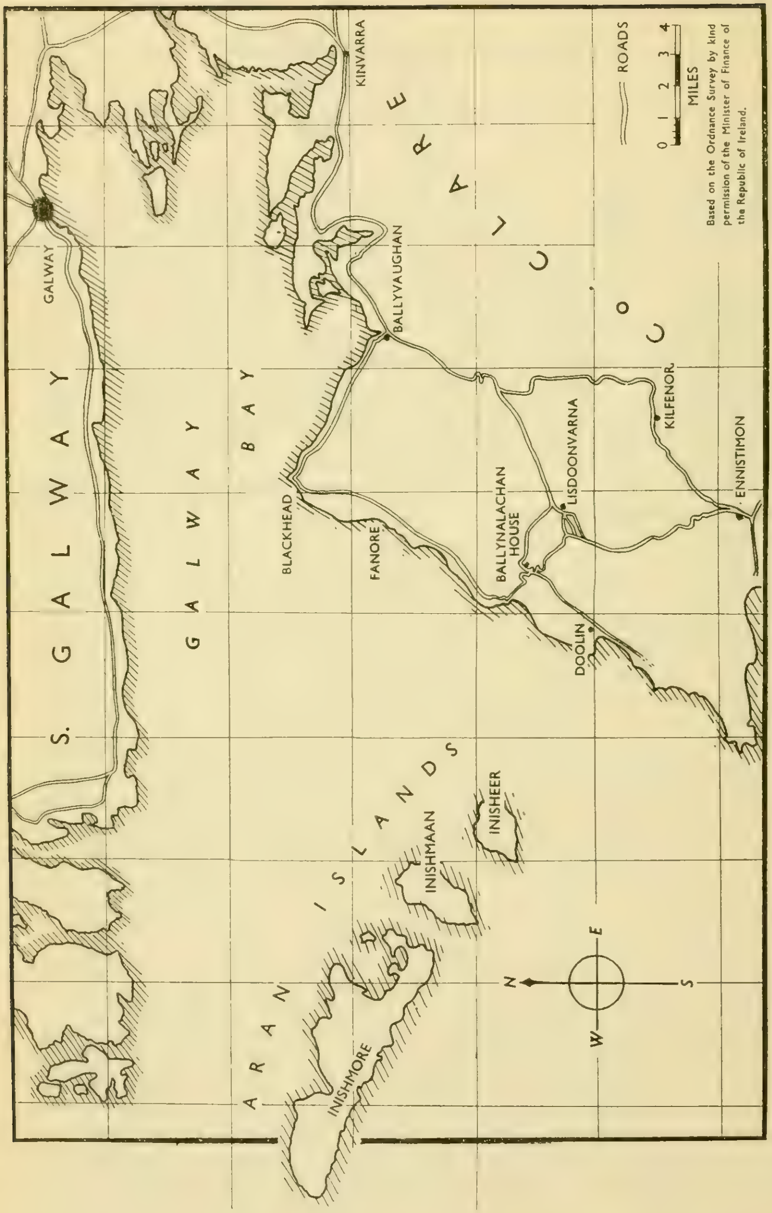
A NATURALIST IN THE BURREN

By H. C. Huggins, F.R.E.S.

Read 23rd August 1956.

The Burren is a strange limestone formation which occupies a considerable portion of South Galway and North Clare together with the three Aran Islands at the mouth of Galway Bay, Inishmore, Inishmaan and Inisheer. I have at one time or another been over most of it, but I have not worked Galway or the Arans for over forty years, so most of the information following applies to Co. Clare, and more particularly to the part between Ballyvaughan and Lisdoonvarna.

The botany of the district is rather interesting, almost as much for what is absent as for what is present. Except in a few places where they have been planted there are no beeches, birches, alders, elms, buckthorn or crab-apples, and of course no firs! This does not prevent several species of Lepidoptera, usually associated with some of these, from occurring; *Tethea duplaris* L. and *Eucosma solandriana* L. both feed on hazel instead of birch and *Triphosa dubitata* L. and *Chloroclystis rectangulata* L. on blackthorn instead of on buckthorn and crab respectively. The prevalent tree on the terraces is the hazel, which however seldom grows more than five feet high, forming an area of dense scrub which it is most dangerous to cross. The limestone under the hazel is full of all the usual deep rifts and crevices, which are almost or quite invisible: on one occasion to save a detour of two miles I attempted to cross a belt of the scrub perhaps 300 yards wide and I can honestly say this is the only time I have been frightened during my whole collecting career. I had gone, unluckily, a hundred yards before I had my first fall, so it was too late to turn back, but it took me twenty minutes and I had three more falls in crossing the remaining two hundred. Never again! The flora of the Burren includes several rarities. The star plant is the Dense-flowered Orchid (*Neotinea intacta* (Link) Rchb.), which usually flowers in early May. The Burren is its one British locality and it is rather local even there, being in fact the only rarity that does not occur till after Fanore, on the Lisdoonvarna-Ballyvaughan coastal road. After that point, however, it occurs in patches right up to Ballyvaughan. It has white flowers and only reaches a height of eight inches and its chief peculiarity is in the arrangement of the flowers, which more resembles that of an Asphodel than an Orchid. The scientific name *intacta* is due to the root-tubers being undivided. It is not found again in Europe till the Mediterranean region. There are two other interesting Orchids, a very large form of the Spotted Orchid (*Orchis maculata* agg.), *O'Kellyi* Druce, which some consider a distinct species and some only of subspecific rank, and the Dark-red Helleborine (*Epipactis atrorubens* (Hoffm.) Schullts.). The latter grows in a very peculiar fashion from a creeping rhizome which



Based on the Ordnance Survey by kind permission of the Minister of Finance of the Republic of Ireland.

THE BURREN OF CLARE

winds through the narrowest cracks of the limestone, so that the plant has the appearance of growing from solid rock. Other characteristic plants are the Mountain Avens (*Dryas octopetala* L.) which, although usually a mountain species here comes right down to the edge of the sea, and the Spring Gentian (*Gentiana verna* L.). The last named is a lovely plant but does not make a great show except on the Island of Inishmore where whole slabs of the limestone are blue with nothing else. The most spectacular are the Avens, which has a large white flower and seed-vessels resembling those of our Traveller's Joy (*Clematis vitalba* L.), and the Bloody Cranesbill (*Geranium sanguineum* L.) which sometimes covers patches of half an acre on the lower ground with its crimson flowers. The true Maidenhair-fern (*Adiantum capillus-veneris* L.) grows in the deeper clefts in the limestone and must be looked for, whilst the very local Hoary Rockrose (*Helianthemum canum* (L.) Baumg.) climbs over many bare patches.

Amongst the Mammals the Pine-marten still survives in some of the more dangerous parts. I was glad to find this out, as it has long since been exterminated in the wilder parts of Cork and Kerry, where I knew it forty years ago, and only survives on the Kenmare estate at Killarney. The Hare is the genuine Irish Hare, not the big English Hare which has been imported to many places. It is a distinct subspecies of the Varying Hare, of which another subspecies occurs in the Highlands of Scotland. It is, like the Scottish one, a smallish rather rabbity-looking beast, which is quite at home amongst the rocks, but unlike the Scottish animal, it does not turn white in winter.

Three birds especially will please the South of England naturalist, the Raven and Corn-crake, which are fairly common, and the Chough, which is not too rare. My wife and I found a Chough's nest containing two young birds this year and ascertained, I think, one good reason for its rarity. The other Corvidae, Crows, Magpies, etc., once the eggs are hatched, clear off directly an intruder appears, but the parent Choughs fly round and round him screaming, perhaps only ten yards away, which must often bring them into danger with the inconsiderate. They look most lovely, clinging to a vertical rock-face like figures of a wall-creeper, with their coral beaks and feet and shining plumage. The Stone-chat is abundant, and is the same as the English form; this is interesting as in West Cork and Kerry it is the Hebridean form that occurs, and its range appears to coincide with that of the Hebridean form of the Foxglove Pug (*Eupithecia pulchellata* Steph. ab. *hebudium* Sheldon) which is the only form found in those districts.

In dealing with the Lepidoptera I shall have to pick and choose a good deal; luckily, many Burren specimens have been shown at recent exhibitions. I intend first dealing with oddities, both of habit and form, as I find any divergence from the usual most interesting, and also useful as it shows the danger of *a priori* arguments. *Abraxas grossulariata* L. shows two peculiarities. On the coastal road from Ballynalachan to Fanore, and also on the road from Ballynalachan to Doolin, the larva appears to feed on hazel only, though there is plenty of blackthorn. By the end of June, however, the blackthorns are completely skeletonised by a little ermine so possibly this may have caused the transfer, but at the end of May when there is still plenty of leaf on the blackthorns all *A. grossulariata* larvae seem to be on hazel. On Inishmore in the Arans however, they feed on the blackthorns which crawl like rockroses over the slabs on this wind-swept Island, but, at any rate forty years ago, ten per cent. of the larvae were black. The moths though not quite of the normal facies were disappointing. Another curious melanism is that of *Hada nana* Hufn. (*dentina* Esp.). Those I have seen in the Burren have all been very dark indeed and conspicuous on the limestone, whilst in West Cork the moth is very light and equally conspicuous on the dark shale. *Epirrhoë galiata* Schiff. is also somewhat melanic. I do not know what has caused these variations which I have only had otherwise from Yorkshire and Durham.

Curiosities of habit, at any rate to a South of England collector, are conspicuous. *Pseudopanthera macularia* L. careers over the rocks and down the valleys in exactly the same style as *Ematurga atomaria* L., which usually emerges a week or so before, but may be seen at the same time and is indistinguishable when against the sky; it is strange to see this woodland insect flying wildly over the bare rocks. *Argynnis euphrosyne* L. is a very difficult insect to capture; it flies very strongly over the more dangerous places, as Mr. E. S. A. Baynes has pointed out, and is a good deal more difficult to catch than *A. aglaia* L. This will seem strange to those who know the two species in southern England. On 5th, 8th and 9th June this year (1956) there was a big flight of *Hepialus lupulina* L. at 3.30 p.m. G.M.T. in a sunny valley, a spectacle I have never witnessed in England; possibly it occurred on other days, but *H. lupulina* is very local in that part of the Burren and these were the only sunny days whilst I was in this place. It may also be as well to mention that *Ammogrotis lucernea* L. has a strong mid-day flight over the rocks in very hot weather; I have seen literally hundreds on the wing, but it is almost impossible to catch as Mr. E. J. Hare can confirm. Mr. Hedges has recorded (*Ent. Rec.*, **65**: 16) this flight from the Isle of Man, but I do not remember seeing it mentioned in books.

Of the butterflies the Small Copper (*Lycaena phlaeas* L.), which is not rare in what few meadows there are, and sometimes on the side of the road, is represented by the subspecies *hibernica* Goodson and most specimens are rather small. The Wood White (*Leptidea sinapis* L. s.sp. *juvernica* Williams) is local and is usually found in the same place as *Argynnis euphrosyne* L., both can be seen on Ballyvaughan common but are more plentiful at Clonclose. The Grayling (*Eumenis semele* L.) is common in all rocky places. Dr. de Lattin has described (*Ent. Rec.*, **64**: 335) the Burren Grayling as a subspecies, *clarensis*, but the insect is, in my experience, most variable, the so-called *clarensis*, a light grey form, being a rather scarce aberration (and see note by Dr. E. A. Cockayne, *Ent. Rec.*, **66**: 39). Baron de Worms has stated recently that the underside of this insect is blue. Altogether I have been in various parts of the Burren for about three months when *E. semele* was on the wing, but I have never seen a bluish one amongst thousands. *Cupido minimus* Fuessl. is common but calls for no comment, though the Burren race of *Erynnis tages* L. is in my opinion a good subspecies as Mr. Baynes suggested in 1954 (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1954-55**, p. 17), the ground colour being practically black with whitish markings. Before leaving the butterflies I would like to call attention to their prolonged emergence periods in Western Ireland; on 17th June this year (1956) in a swampy valley between two portions of the Burren I saw in half an hour the following, all in good condition: *Euphydryas aurinia* Rott. (3), *Argynnis aglaia* L. (2), *Pararge aegeria* L. (several), *Eumenis semele* L. (1 male), *Maniola jurtina* L. (several), *Coenonympha tullia* Müll. (1), *C. pamphilus* L. and *Polyommatus icarus* Rott. (common), and *Lycaena phlaeas* L. (2). It was a hot sunny day and the earliest date I have ever seen *A. aglaia* and *E. semele*, and the latest for *E. aurinia* in reasonable condition.

I must pick out a few of the moths, as it is little use giving a mere catalogue. Firstly I will mention the Burnet, *Zygaena purpuralis* Brün. (*pilosellae* Esp., *minos* Fuessly). This unhappy insect seems to have settled down at last to the name of *purpuralis* though there is, I understand, still some doubt if this insect be the true *purpuralis* of Brünnich, but the question cannot be taken further as the type was unfortunately destroyed during the bombardment of Copenhagen in 1801 by Lord Nelson. The weather in the Burren is often very bad, but the Burnet is the one insect it is impossible to miss. It first emerged this year (1956) in a sheltered place on 25th May and was still emerging on 20th June. It especially likes stony places with a few scattered blades of grass growing on them and may be found there at any time of the day or night except during the heaviest downpours. I went to look for it with a lamp and found it at midnight, and I have seen it flying in light rain. It is a larger, redder insect than the Abersoch form; I have not seen the Scottish one. Its emergence period continues till the first week in July and it is not confined to the stony parts as it extends, sometimes in meadows, as far as Ennis and is found in many parts of South Galway. *Malacosoma neustria* L. and *Eriogaster lanestris* L., very local insects in Ireland, are both common; I bred a few of the former and the darker males were more of a liver-brown tint than any I have bred in England. *Lasiocampa quercus* L. is very common, all are of the *callunae* Palmer form, the only one I have found in Ireland, and in the Arans are the largest I have ever seen. The life-history is unusual, in the Arans as in Kerry and Cork the insect has a twelve-month life-cycle, but in Clare some complete their transformation in twelve months and others take two years, though I cannot say if there are two races side by side or if both life-cycles take place in the same brood. The imagines can be seen flying whilst half-grown larvae are about but I have also taken wild larvae in late May from which some have emerged in August and others the following June. *Setina irrorella* L. is distributed throughout the Burren, though commonest in the stony parts, it may be found sparingly in the meadows and bogs, where the larva feeds on the lichens on the stone walls. It swarms on Inishmore and after rain the larvae, with those of *Eilema lurideola* Zinck., may be seen literally in thousands on the stone walls. I sent some many years ago to the late L. W. Newman, who reared them on Lettuce stumps, but they were somewhat undersized; I have reared them myself and obtained very large specimens by feeding them on the orange lichen found commonly on the rocks. Col. Donovan has called the Burren insect the ab. *flavicans* of Boisduval; I do not think on an average they are any darker than the Dungeness ones, though I bred a very brilliant female this year.

Amongst the Agrotidae *Apatele euphorbiae* Schiff. is not uncommon and is double-brooded, appearing in May and early August. Most are very much lighter than the Scottish s.sp. *myricae* Guen. and I thought at first would prove to be a new subspecies, but Mr. Goodson later managed to find similar specimens to the Scottish in the Tring collection, so Dr. Cockayne and I agreed the light ones were only extreme points in a range. *Phothedes captiuncula* Treits. is, however, distinct and very beautiful, the s.sp. *tincta* of Kane. It is the most difficult insect of all to obtain as although it is found in most places it only flies in brilliant sunshine in which it is hard to follow, and is usually in dangerous places where a sudden dash might prove disastrous. The situation is complicated also by several Tortrices being on the wing at the same time and flying in the same way; one of which, the red and yellow *Philedone gerningana* Schiff., is particularly misleading. The female, which is much whiter, is rarely seen in flight and if seen on a grass stem will drop at the least provocation. The two Hadeninae, *Hadena caesia* Schiff. and *H. capsophila* Dup. are both to be found where *Silene maritima* With. grows but *H. caesia* only seems to be present where the plant is at the edge of the sea. *H. caesia* is a lovely blue form which I have not seen from anywhere else and is not too easy to obtain as clumps of *Silene* by the sea-shore are local, and the full-grown larva is apt to be "stung". Most of mine were bred nearly from the egg and fed freely on flowers and green seed-pods of Sweet-William; the moths were full-sized. The *H. capsophila* are of the dark form, *suffusa* Tutt, which extends roughly from Cork to the Burren. The Burren ones are, however, slightly different from those from other Western localities; they are a little more prominently marked and the markings are clear white, not grey. When the moth is alive it has a chalky flush, but when set flat this is invisible. *H. capsophila* is found inland where *Silene maritima* and also *S. cucubalus* Wibel grow. The Burren *Apamea furva* Schiff. are worth looking at, they are much more brightly marked than any I have seen elsewhere. Usually *A. furva* is a dirty looking moth with no markings worth noticing but the Burren examples look like little *Mamestra brassicae* L. when alive. The first I took was on the first evening I went for *Calamia tridens* Hufn. (*virens* L.). I did not expect to see many *C. tridens* and only took 18 boxes. Almost at once I caught a lovely female *Alucita icterodactyla* Mann. and soon after what I thought was a dwarf *M. brassicae*. I then found a big colony of

C. tridens, which were just emerging and drying their wings. I proceeded to fill all my boxes and threw out the *M. brassicae* to make room for another. When I got home I suddenly thought I had been foolish and that it had been one of the Burren *A. furva* of which Dr. Cockayne had spoken to me. Two days later Mr. L. Savage came to stay at the same hotel, and before I left brought back one of my "dwarf *M. brassicae*"—a Burren *A. furva*. I took the insect however, two years later when out with Mr. E. S. A. Baynes.

I shall not say much about *Calamia tridens* except that it is, after the Burnet, perhaps the easiest Burren insect to get if you can find a good place. I think it is spread over all the Burren from Ballyvaughan to Lisdoonvarna, but in many parts it is thinly distributed. Here and there, however, it lives in big colonies, so that thirty or forty may be seen sitting on the grass in half an hour; and very lovely they look by lamplight. It is best boxed as it sits after drying its wings, netted specimens are not worth taking as the first lovely colour goes off in a day and I do not think it flies till the second night.

Other Agrotidae to be sought are *Thalpophila matura* Hufn. which has reddish-grey forewings, *Aporophyla lutulenta* Schiff. (which is of the ab. *luneburgensis* Freyer form) and *Stilbia anomala* Haw.

The most interesting Geometer to my mind is *Aspitates gilvaria* Schiff. s.sp. *burrenensis* Cockayne. This is generally common, though the female is difficult to get and is most easily found at night with a lamp as it sits on the grass; the male may be kicked up at any time in fine weather. Dr. Cockayne's original description of this insect (*Ent. Gaz.*, **2**: 100) was based on some from one place only and does not always hold good for all of them over its whole range. The peculiar banding on the underside is constant but the moth is not always smaller and darker; the lightest and also the largest specimens of *A. gilvaria* that I have are Burren specimens although when I lived in Kent I saw the moth every year and had the pick of hundreds. *Perizoma blandiata* Schiff. and *P. minorata* Treits. are both fairly common, the latter being confined to the Burren in Ireland. *Gnophos myrtillata* Thunb. can only be sought with confidence there, though a few have been taken in Connemara and Donegal.

Amongst the Pyralids *Rhodaria sanguinalis* L., one of our most brilliant and local insects, is common and *Mecyna asinalis* Hb. and *Pempelia ornatella* Schiff. are also confined to the Burren. The high lights of the Micros are however, the two plumes, *Platyptilia tesseradactyla* L. and *Alucita icterodactyla* Mann., both of which are confined to Ireland in the British Isles. *A. icterodactyla*, of which the Irish race, s.sp. *phillipsi* was described by me in 1955 (*Ent. Gaz.*, **6**: 125) as distinct, is another Mediterranean species, its nearest localities being Spain, Southern France, and Corsica. Its life-history is at present unknown but I am certain it feeds on Wild Thyme (*Thymus serpyllum* agg.); it was first found by Mr. J. D. Bradley in 1952 (*Ent. Gaz.*, **4**: 139 and pl. 1). *Platyptilia tesseradactyla* L. is a puzzle: it was first thought to be a Burren species but has since been found in several other places, notably in Tyrone by my late friend Thomas Greer. I took it there in his company in 1938, it was not uncommon in several places where its food-plant, *Antennaria dioica* (L.) Gaertn., grew on sand or metamorphic rock. As it is found, amongst other places, in Scandinavia, it is rather puzzling that it does not occur anywhere in Great Britain. Kane took it at Clonbrock, where he obtained many rare insects. Clonbrock is by no means the poor locality that the reaction against Dillon has painted it.

Perhaps the rarest of the Burren Micros, or the most difficult to obtain, is the very beautiful Tineid *Hypercallia christiernana* L., which is primrose yellow with red bars. This moth has otherwise only been found to occur with us in Kent where it is on the verge of extinction, only one specimen having been taken in the past fifty years. It is very local on the Burren and difficult to obtain without a mercury vapour lamp.

The last moth I shall mention is the fine Tortrix *Cnephasia colquhounana* Barr. This is generally distributed in the coastal parts, but its range is very interesting, coinciding almost completely with that of *Hadena caesia* Schiff., the Isle of Man, South and West of Ireland, and the Western Isles of Scotland, though it continues to the Shetlands where *H. caesia* does not follow it.

Finally, the Snails of the Burren are as celebrated as the flora and Lepidoptera. It is particularly renowned for the huge race of *Cepaea nemoralis* L., which reaches its greatest size on Inishmore. The colours are as extraordinary as the size, and the usually black lip of the shell may be white, pink, or yellow. The other special snail is *Helicella itala* L., which is most abundant, and has a large proportion of albino forms, and also of the ab. *lentiginosa* Moq. with radiated dark markings. The range of this latter form, which is curiously like that of *Hadena caesia* Schiff. and *Cnephasia colquhounana* Barr., is the Isle of Man and Western Ireland.

DE-SCALING IN GONODONTIS BIDENTATA CLERCK

By Stuart E. W. Carlier.

Read (in title) 8th November 1956.

From nine feral larvae of *Gonodontis bidentata* Clerck, beaten from the same group of Scots pines on Cannock Chase, Staffs., were obtained four melanic females, two melanic males, one very de-scaled melanic female, one partially de-scaled melanic male and one somewhat thinly scaled typical female. These all being in the last instar and of the same size, pupated within a week of capture; and coming off the same three closely set trees were more than likely of the same pairing, i.e., brothers and sisters.

F1 family "A".

The de-scaled melanic female was mated with one of the well scaled melanic males, giving rise to 18 females and 16 males, all melanic. Four of the males and four (or five) of the females had visible, though varying degrees of de-scaling.

F1 family "B".

One of the well scaled melanic (Cannock) females was mated with a well scaled typical male of New Forest, Hants., origin. This resulted in 11 females (five melanic and six typical) and eight males (five melanic and three typical), showing that the female parent was a melanic-heterozygote. Two of the melanic specimens (one male and one female) were of the "de-scaled" form, especially in their hindwings.

F1 family "C".

A second well scaled melanic female from Cannock was mated with another well scaled typical male of New Forest origin, producing 13 females (eight melanic and five typical) and 22 males (six melanic and 16 typical). At least four of this family show de-scaling.

F2 "Magenta" family.

A melanic well scaled male and a similar female of "A" family (marked with magenta discs in the exhibit of these broods at the Society's exhibition on 27th October last) were mated and produced 130 ova. Only 70 hatched, 24 of the larvae pupated and only four emerged as adults, two typical and two melanic, one being de-scaled. Both parents must have been heterozygous-melanics.

F2 "Scarlet" family.

A well scaled melanic female of "A" family mated with a well scaled melanic male of "B" family produced 237 ova of which 210 hatched, 126 of the larvae pupated and 68 imagines emerged, 40 females and 28 males. All were melanic and nearly half of them showed de-scaling. As the male parent was of melanic × typical stock it could only have been a heterozygote-melanic, and as the whole of the offspring were melanic the female parent must have been homozygous.

As the "magenta" male and female of family "A" were melanic heterozygotes and the "Scarlet" female of family "A" was a melanic homozygote, it follows that the parents of family "A" were a homozygous melanic and a heterozygous melanic. The de-scaled female probably being the heterozygote.

F2 "PINK" FAMILY.

A well scaled heterozygous melanic male of "A" family was mated with a well scaled typical female of "B" family producing 196 ova, of which 160 hatched, 101 larvae pupated but only 22 moths emerged, 11 (five male and six female) typical and 11 (six male and five female) melanic. At least nine (nearly half) were to some extent de-scaled.

F2 "YELLOW" FAMILY.

A heterozygous melanic female with de-scaled hindwings was mated with a heterozygous melanic male with all wings partially de-scaled. Both were of "B" family and gave 310 ova of which 235 hatched, 139 pupated and 52 emerged, 32 melanic and 20 typical. At least a third of these appear to be fully scaled. (This family contained one gynandromorph—left side female, right side male).

F2 "BLUE" FAMILY.

A well scaled typical female mated with a well scaled typical male, both of "C" family produced 198 ova, 126 hatched, 62 pupated but only seven imagines emerged, all typical. Five (i.e., approximately two-thirds) were de-scaled.

I was informed before breeding these eight families of two generations, that de-scaling in this species was thought to be a recessive genetic character, but was prone to give somewhat unexpected results in some families.

CONCLUSIONS.

The incidence of de-scaling is far too low, in all of my eight families, for it to be accounted for by a simple recessive gene. The percentage by which this incidence of de-scaled individuals is below expectation is approximately the same in every family.

Providing one assumes that all the apparently well scaled insects chosen to breed from, including those of New Forest origin, were de-scale heterozygotes, the results, in all cases, are consistent with those one would expect of a recessive gene which required the influence of a second pair of genes, or alternatively of some particular external (environmental) factor for full expression to be achieved.

If de-scaling is caused by a gene governed as to its expression by some external factor one might expect the intensity of this environmental element to determine the degree of expression in the various individuals. Producing complete de-scaling when strong, and progressively less as its influence weakens, until a stage is reached when the de-scaling is so slight as to be imperceptible. This seems to be the case in all my families.

All my de-scaled specimens were extremely wet, abnormally so, on emerging from their pupa cases. The de-scaling appeared to be caused by the "drag" of the rough edges of the ruptured pupa case against the very wet unexpanded wings, leaving balls or small rolls of scales, either on the edges of the split in the pupa case, or on the wings—usually towards their outer borders.

I therefore suggest that de-scaling in this species, is caused by a conditioned recessive gene. The moisture content of the pupa acting as the conditioning environmental influence, and that perceptible de-scaling only occurs when this is above a certain level.

GALL WASPS (CYNIPIDAE, HYM.) OF THE COMPOSITAE

By M. Niblett, F.R.E.S.

The following notes on the Gall Wasps whose galls are to be found on various species of Compositae are compiled mainly from my own observations. All emergence times are those of insects whose larvae were kept as near to natural conditions as possible; all the larvae pupate in the galls.

Aulacidea hieracii (Behé.): The galls of this species may be found on various species of *Hieracium* L. during the summer and autumn; they vary greatly in size, shape, and in their position on the stems. The galls are often locally plentiful, I have had them from Benfleet, Essex; Hunstanton, Norfolk; Storrington, Sussex; and a number of Surrey localities. The gall wasps emerge in May and June of the second year.

A. hypochoeridis (Kieff.): The larvae of this species cause elongated swellings on the flower-stems of *Hypochaeris radicata* L. and may be found from early summer onwards. The gall wasps emerge in May, June and July of the following year. Here again the galls are sometimes locally plentiful, one may search a large area without finding a single gall, and then come across a small patch of the host plant where the galls abound. I have had them from Benfleet, Essex; Brockenhurst, Hants.; East Cowes, Isle of Wight; Peacehaven, Sussex; and from numerous Surrey localities.

A. pilosellae (Kieff.): The larvae cause fusiform swellings on the mid-rib of leaves of *Hieracium pilosella* L. and may be found from July onwards. I have found them sparingly at Banstead Downs, Banstead Wood, Bookham Common, Boxhill, Buckland Hills, Epsom Common, and Walton Heath, all in Surrey. The gall wasps emerge in June and July of the second year.

A. subterminalis Niblett: The more or less globular galls of this species are formed at the end of the runners of *Hieracium pilosella* L. I found them at Banstead Wood, Surrey, in July 1943, and have found them since in very small numbers at Ashtead Common, Boxhill, and Effingham Common, all in Surrey. I know of no other British records; it has been recently recorded from France by Barbotin (1954). The gall wasps emerge in July of the second year.

A. tragopogonis (Thoms.): The larvae of this species inhabit swellings they cause on the stems of *Tragopogon pratensis* L. and the s.sp. *minor*, usually at or near the base; the galls may be found from June onwards and the gall wasps emerge in May, June and July of the following year. They are not uncommon and I have found them in a number of localities.

Aylax caulicola Hed.: The larvae live in the stems of *Picris echioides* L., there is no outward sign of their presence and the gall wasps emerge in June and July of the second year.

This species was first brought to my notice by Mr. S. Wakely who in 1934 gave me some old stems he had collected at Burnham-on-Crouch, Essex. In the following year some more stems were brought from the same area, and from both series of stems a number of gall wasps were bred. As no description could be found that fitted these insects some were sent to Dr. Hedicke of Berlin, who described them as a new species. I have been unable to trace any further records, either here or on the Continent; but early in 1956 Mr. Wakely, to whom I am greatly indebted, gave me a piece of an old stem found at Pitsea, Essex, from which a number of *A. caulicola* emerged.

A. fitchi Kieff.: This is another rare species, the larvae cause swellings on the petiole and mid-rib of leaves of *Centaurea scabiosa* L. I have made an intensive search for these galls for many years and only found them at Dorking once, and at Epsom Downs twice, both localities in Surrey. The only emergences were a few Chalcids.

The galls were originally found in Derbyshire in 1875 and sent to Mr. E. A. Fitch, who bred the gall wasp which he thought was possibly *Isocolus* (*Aulax*) *scabiosae* (Gir.), but being doubtful he sent it to Kieffer (1897-1901) who described it as a new species. Kieffer found some of the galls in Lorraine but failed to obtain any gall wasps from them.

Gilletia taraxaci Ashm.: The larvae of this species cause swellings on the mid-rib of the leaf of *Taraxacum officinale* agg. I have not found this gall myself and the only British record I know is that of Bagnall (1932), who recorded it from Scotland.

Isocolus jaceae (Schen.): The larvae of this species are not uncommon in the achenes of *Centaurea nigra* L. which they cause to swell considerably. From these I have had the gall wasps emerge once in August of the first year, all the others emerging in June and July of the second. There have been a few records of this species occurring in the achenes of *Centaurea scabiosa* L. and although I have had some thousands of flower-heads of that plant from many localities, it was not until 1953 that I obtained from Addington, Surrey, a few galled achenes. From these one *I. jaceae* emerged in August of the first year, and two in July of the second year. The flower-heads from which the insects have been bred were collected from July to May of the following year.

I. rogenhoferi Wachtl: The larvae are to be found in the involucral bracts of *Centaurea scabiosa* L. which become very swollen. These galls are not uncommon and may be found from July onwards, the gall wasps emerge in August and September of the first year and in June and July of the second. I have had these galls from Cambridgeshire, Derbyshire, Sussex, and from many localities in Surrey.

I. scabiosae (Gir.): The larvae cause swellings on the stems of *Centaurea scabiosa* L. usually near the base and may be found from

August onwards, the gall wasps emerging in July of the following year. I have found the galls in a few localities in Surrey, at Ashtead, Dorking, Epsom Downs, Woldingham, and Woodmansterne, in quite small numbers. The larvae are heavily attacked by Chalcid parasites which may probably account for their scarcity.

Phanacis centaureae Först.: The larvae live in the stems of *Centaurea nigra* L. and *C. scabiosa* L., but there is no outward indication of their presence. I have found them to be generally plentiful in most areas where their host-plants grow. The stems may be collected in autumn and winter, and the gall wasps emerge in the following May, June and July, the majority coming out in June.

Timaspis lampsanae (Perris): The larvae cause rather long irregular swellings on the stems of *Lapsana communis* L., and the gall wasps are stated to emerge in May of the second year. It was recorded by Bagnall and Heslop Harrison (1934) from Norfolk. I have not found the galls myself and know of no other British records.

T. sonchi (Stef.): The gall of this species has been recorded as occurring on the stem-bases of *Sonchus arvensis* L. or *S. asper* (L.) Hill in several localities in August. I searched for it in one of these for several successive years but failed to find any of the galls. The gall wasps are stated to emerge in May of the second year.

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NOTES ON LEAF-MINING DIPTERA

By M. Niblett, F.R.E.S.

The following notes refer to species of Diptera of which I have found the larvae and from which I have bred flies.

Agromyzidae.

Agromyza anthracina Meig.: The larvae of this species were found in mines in leaves of *Urtica dioica* L. in November, they pupated in the soil and the flies emerged in the following April.

A. rufipes Meig.: Larvae were found in June and July in leaves of *Cynoglossum officinale* L., *Lithospermum officinale* L. and *Symphytum officinale* L., they pupated in the soil and the flies emerged in July and August of the same year.

Phytobia flavifrons Meig.: Larvae were found in leaves of *Saponaria officinalis* L. and *Silene cucubalus* Wib. (*inflata* Sm.) in August, they pupated in the soil and the flies emerged in the following month.

P. posticata Meig.: Larvae of this species were found in leaves of *Solidago virgaurea* L. in September, these pupated in the soil, the flies emerging in the following April.

Liriomyza strigata (Meig.): I have found mines of this species in leaves of *Eupatorium cannabinum* L., *Galeopsis tetrahit* agg., *Heracleum sphondylium* L., *Senecio jacobaea* L. and *Sonchus oleraceus* L. in July, the larvae pupated in the soil and the flies emerged in July and August of the first year, and in May of the second year.

Phytagromyza hendeliana Hering: Larvae were found in mines in leaves of *Lonicera periclymenum* L. in May, June and July, they pupated in the soil and the flies emerged in April of the following year.

Napomyza glechomae (Kalt.): Larvae of this species were found in leaves of *Glechoma hederacea* L. in November, they pupated in the soil and the flies emerged in the following April.

Phytomyza angelicae Kalt.: Numerous larvae were found in leaves of *Angelica sylvestris* L. in October, they pupated in the soil and the flies emerged in April of the following year.

P. conyzae Hend.: Mines of this species were found in July on *Inula conyza* DC. (*squarrosa* L.), they pupated in the soil and the flies emerged at the end of August.

P. ilicis Curt.: Mines in leaves of *Ilex aquifolium* L. containing pupae of this species were collected in April and early May, the flies emerged in May and June.

Trypetidae.

Acidia cognata Wied.: The larvae are to be found in the leaves of *Petasites hybridus* (L.) Gaertn., *P. fragrans* (Vill.) C. Presl, and

Tussilago farfara L., in October and November they pupated in the soil and the flies emerged in May and June of the following year.

Philophylla heraclei (L.): The larvae were found in the leaves of *Apium nodiflorum* (L.) Lag., *Angelica sylvestris* L., *Heracleum sphondylium* L., *Pastinaca sativa* L., and *Smyrnium olusatrum* L., in June and July, they pupated in the soil and the flies emerged in July and August of the same year. The larvae are also to be found on Celery and cultivated Parsnips.

There are two forms of this species, one light and the other dark coloured. I have bred a great many of these flies but have not yet found one that I consider to be the dark form, although some might be called intermediates. It has been stated that in mild seasons the larvae have been found in leaves of Celery as late as early December. Also that there are several generations in a year, the last brood remaining in the puparia during the winter in the soil. I have searched its wild host-plants for many years but have never found anything but empty mines after July. It has also been stated that the dark form is only bred from overwintering pupae.

In June 1951 leaf-mines were found on *Cirsium arvense* (L.) Scop. containing five larvae which left them and pupated in the soil, from these in July there emerged one fly which appears to be an exceptionally light form of *P. heraclei*. According to Macquart and Meigen this species was found to infest thistles in France and Germany, intensive search of thistle leaves has failed to provide me with any more of these larvae.

Spilographa spinifrons Schr.: Larvae were found in leaves of *Solidago virgaurea* L. in September, the larvae pupated in the soil and the fly emerged in April of the following year.

Spilographa zoë Meig.: Larvae of this species were found in leaves of *Chrysanthemum maximum* Ramond, *Senecio erucifolius* L., *S. jacobaea* L., *S. squalidus* L., and *S. vulgaris* L., in May, June and July; the larvae pupated in the soil and the flies emerged in June, July and August of the same year. In addition I found larvae in leaves of *Senecio vulgaris* L. in September, these pupated in the soil and the flies emerged in the following May; a few larvae were also found in leaves of *S. jacobaea* L. in October, these went to earth and the flies emerged in April of the following year. I have seen no reference to this species having more than one generation in a year, it is probably uncommon.

MUSCIDAE.

Chirosia setifemur Ringd.: The larvae of this species are to be found in mines on the pinnules of *Pteridium aquilinum* (L.) Kuhn in July, they pupate in the soil and the flies emerge in the following May.

Pegomyia albimargo Pand.: This appears to be a scarce species, larvae found in leaves of *Melandrium rubrum* (Weig.) Garcke in June pupated in the soil and the flies emerged in the following month.

P. genupuncta Stein: The larvae mine the leaves of *Arctium lappa* L. and *A. minus* (Hill) Bernh. in June and occasionally July, they pupate in the soil, the flies emerging in the following year in April and May.

P. nigritarsis (Zett.): The larvae may be found in the leaves of *Rumex acetosa* L., *R. acetosella* L., and numerous other species of *Rumex* in May, June, July, August, September and October, they pupate in the soil and the flies emerge in June, July, August and September of the first year, and in April of the second; at times a portion of a brood will emerge in August or September of the first year, and the remainder in the following April.

P. steini Hend.: The larvae of this species mine the leaves of thistles which they leave to pupate in the soil; I have found them on *Carduus crispus* L., *Cirsium arvense* (L.) Scop. and *C. vulgare* (Savi) Ten. in July, the flies emerge in April and May of the following year.

It should be noted that all the emergence times given are of insects whose larvae and pupae were kept under as near natural conditions as possible, the temperatures in the winter often being well below freezing point.

Nomenclature follows Spencer, K. G., 1956, The British Agromyzidae, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1954-5**: 98-108, for Agromyzidae; Collin, J. E., 1947, Brit. Gen. Trypetidae (Diptera), *Ent. Rec. Suppl.*, **59**: 1-14, for Trypetidae; and Kloet, G. S. and Hincks, W. D., 1945, *A Check List of Brit. Insects*, Stockport, for Muscidae.

ERRATUM.

In *Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 1, Dr. Cockayne was given as the author of the var. *brevipennis* of *Lasiocampa quercus* L. The correct author of course was Mr. Gordon Smith.

INDEX

IMPORTANT.—A single page reference in the following does not necessarily mean that there is only one mention of the species, etc., on that page.

PAGE

Albinism ... 19, 43, Pl. III
Asymmetry ... 39, 40
Burren of Clare, map ... 138
Distribution maps ... 126-136 inclusive

Field Meetings:
  Addington ... 83
  Balcombe ... 79
  Benfleet ... 71
  Betchworth ... 85
  Bookham ... 76
  Box Hill ... 70, 80
  Buxted ... 74
  Chiddingfold ... 81
  Chilworth ... 81
  Chipstead ... 87
  Chobham Common ... 75
  Cosford Mill ... 73
  Druids Grove ... 89
  Eashing Moors ... 82
  Folkestone ... 79
  Ham Street ... 77
  Horsell Common ... 78
  Horsley ... 70, 75
  Mickleham ... 87
  Otford ... 83
  Oxshott ... 69, 86
  Pevensey ... 88
  Stanford-le-Hope ... 71
  Upper Halling ... 78
Homoeosis ... 37, 38, 40
Melanism ... 5, 17, 18, 22, 23, 24, 27, 33, 40, 41, 43, 46, 48, 49, 140, 145, Pl. III
Papers published—see Contents, page ii

Papers read but not published:
  An introduction to the Honeybee's World—Dr. Colin G. Butler ... 3
  Amazonian Jungle Insects of Peru—Dr. Elwood C. Zimmerman ... 6
  Butterflies of Malaya—Mr. M. F. W. Tweedie ... 9
  Industrial melanism in Lepidoptera—Dr. H. B. D. Kettlewell ... 1
  Lepidoptera of Nigeria—Dr. B. J. MacNulty ... 13
  Spiders—Mr. W. H. Spreadbury ... 10
  Unsolved problems of the Beetle World—Rev. C. E. Tottenham ... 8
Somatic mosaics ... 15, 18, 19, Pl. III
Special Resolution, Subscriptions ... 13
Teratology ... 2, 5, 25, 26, 49, Pl. II
Water Colour Drawings ... 44

PAGE

AMPHIBIA.

Marsupial Frog 16
marsupiatum, Gastrotheca 16
martinicensis, Eleutherodactylus 16
Tree Frog 16
viridiflava, Hyperolius 16

ARACHNIDA.

australis, Androctonus 16
avicularia, Avicularia 16
Bird eating spider 16
Black widow 16
Fat-tailed Scorpion 16
imperator, Pandinus 16
mactans, Latrodectus 16
occitans, Buthus 16
Scorpion 16
vagans, Brachypelma 16

BIRDS.

Buzzard 4
Carrion Crow 72
Chough 139
Corn-crake 139
Corvidae 139
Crow 139
Cuckoo 70, 71
Greater Spotted Woodpecker 70
Green Woodpecker 70, 72
Little Grebe 70
Magpie 139
Meadow Pipit 70
Raven 139
Red Shank 71
Reed Bunting 72
Sedge Warbler 71
Shelduck 72
Stonechat 139
Swallow 71
Wild Duck 72

COLEOPTERA.

acuminatus, Agriotes 74
Adelium 2
aenea, E. dubia, var. 10, 11, 81
aenea, Triplax 7
aeneus, Harpalus 29
aeneus, Meligethes 82
aeneus, Olibrus 71, 82
aeneovirens, Caenorhinus 6
aethiops, Apion 74
affine, Ennearthron 86
affinis, Berosus 72
alauda, Cionus 74
algirus, Lixus xxxvii
alpinus, Podabrus 30
analis, Amischa 84

PAGE

angustus, Dromius 7
Anobium sp. 9
antirrhini, Gymnetron 88
apricaria, Amara 29, 71
arenariae, Sibinia 7
araneiformis, Barypithes 79
arenosus, Dyschirius 29
armigera, Odontaeus 10
armoraciae, Phaedon 74
articulatum, Bembidion 73
assimilis, Ceuthorhynchus 74
assimilis, Patrobus 30
ater, Hylastes 74
atomarius, Bruchus 74
atomarius, Mycetophagus 30
atrata, Phosphuga 71, 82
atratus, Meligethes 74
aulica, Amara 29, 82
australis, Anthenocerus 4
austriacus, Phytonomus 30
bajulus, Hylotrupes 12
balteatus, Malthinus 30
banksi, Chrysolina 71
baulei, B. andreae var. 29
biguttatus, Cryptocephalus 10
biguttatus, Notiophilus 79
binotatus, Hallomenus 84
bipustulatus, Badister 71
bipustulatus, Chilocorus 75
bipustulatus, Kateretes 74
bipustulatus, Malachius 76
blandus, O. arcticus 30
boleti, Cis 86
bovistae, Lycoperdina 14, 88
brevicauda, Mordellistena 30, 79
caesareus, Staphylinus 45
caesum, Omalium 71
canaliculata, Drusilla 71
canaliculatus, Stenus 73
caspius, Gyrinus 72
cephalotes, Broscus 29
cervinus, Dascillus 30, 79
cervus, Lucanus 8, 82
Ceuthorhynchus 6
chrysomelinus, Tachyporus 71
cicindeloides, Stenus 73
cinnabarinus, Elater 7
circumflexus, Dytiscus 72
clavicornis, Stenus 71, 73
coccinea, Pyrochroa 74
coccineus, Endomychus 69, 70
coerulescens, Dianous 6, 73
cognatus, Philonthus 73
concinna, Chaetocnema 82
connexus, Litargus 69
constrictus, Ceuthorhynchus 74
contractus, Ceuthorhynchus 71, 74
corticalis, Olibrus 82

PAGE

craccae, Apion ... 82
crenulata, Corticaria ... 71
culinaria, Melasia ... 49
cuprea, Pterostichus (Feronia) ... 75
cupreus, Corymbetes ... 30
cupreus, Elaphrus ... 73
cupreus, Rhynchites ... 6
cylindrus, Bagous ... 72
deflexum, Liosoma ... 74
degenerata, Nebria ... 29
depressus, Licinus ... 12, 29, 80
dermestoides, Pediacus ... 7
difforme, Apion ... 79
diligens, Pterostichus (Feronia) ... 29, 73, 82
dorsale, Agonum ... 29
dubia, Euchlora ... 10, 11, 81
dulcamarae, Psylliodes ... 14, 88
Dytiscus ... 4
ephippium, Bembidion ... 7
erichsoni, Stenus ... 84
ervi, Apion ... 82
erysimi, Ceuthorhynchus ... 74
excavatum, Omalium ... 71
fagi, Diplocoelus ... 30, 84
familiaris, Amara ... 73
fasciatus, Bruchidius ... 79
fastuosa, Pilemostoma ... 80
ferrea, Stenostola ... 6, 30
ferruginea, Crepidodera ... 82
ferrugineus, Pocadius ... 14
flaveola, Cassida ... 30
flavescens, Drilus ... 12, 84
flavipes, Hydroporus (Graptodytes) . 73
flavipes, Stenus ... 82
frontalis, Anaspis ... 74
frontalis, Rantus ... 30, 72
fuliginosum, Agonum ... 82
formosus, Tachyporus ... 82
fulva, Rhagonycha ... 11, 82
fur, Ptinus ... 3
fuscipes, Calathus ... 29
fuscipes, Hydrobius ... 72
fuscipes, Podagrica ... 71
fuscirostre, Apion ... 74
gentilis, Gyrophaena ... 82
geminum, Lathrobium ... 73
germanicus, Caenorhinus ... 82
gibbosa, Corticarina ... 82
globulus, Anacaena ... 73
gustavi, Dicheirotrichus ... 71
Gyrinus ... 22
haemorrhoidalis, Cercyon ... 73
halophilus, E. quadripunctatus ... 72
harpalinus, Bradycellus ... 73
hirtulus, Ceuthorhynchus ... 71
histeroides, Cerylon ... 74, 82
horticola, Phyllopertha ... 7, 76

PAGE

humeralis, Synchita ... 69
humator, Necrophorus ... 70
humeralis, Anisotoma ... 84
hypnorum, Tachyporus ... 71
hypochaeridis, Cryptocephalus ... 79, 80
jacobaeae, Longitarsis ... 82
labiatus, Cryptocephalus ... 79
laminatus, Philonthus ... 73
lampros, Bembidion ... 29, 73
lardarius, Dermestes ... 74
lateralis, N. livida var. ... 13
lepida, Pterostichus (Feronia, ...
lilii, Liliocerus ... 12, 75
limbata, Anacaena ... 73
linearis, Dromius ... 82
livida, Nebria ... 13, 29
lividus, Conosoma ... 71
longicornis, Luperus ... 30
longo-elytrata, Lesteva ... 73
lunatus, Biphyllus ... 69
lunatus, Gronops ... 7
lunulatum, Bembidion ... 71
luridus, Longitarsis ... 84
luteum (pallidum), Eusphalerum ... 82
maculata, Strangalia ... 9
madida, Pterostichus (Feronia) ... 29
mannerheimi, Deporaus ... 79
marginella, Hydrothassa ... 74
marginellus, Tachinus ... 71
marmoratus, Nanophyes ... 83
melanaria, Pterostichus (Feronia) ... 29
melanarius, Amalorrhynchus ... 8
melanocephalus, Calathus ... 29
melanocephalus, Dromius ... 71
merdarius, Aphodius ... 20
minimum, Bembidion ... 71
minutum, Eusphalerum ... 73
minutus, Limonius ... 71, 73
molochinus, Quedius ... 73
multipunctatus, Mycetophagus ... 30
mysticus, Anaglyptus ... 9
nasturtii, Drupenatus ... 8
nemorivagus, Anisodactylus ... 29, 73
nigra, Strangalia ... 7
nigricans, Catops ... 71
nigripenne, Agathidium ... 84
nigrita, Pterostichus (Feronia) ... 29
nitens, Carabus ... 9
nivalis, Synuchus ... 29, 79
nitidiusculus, Stenus ... 73
nobilis, Cassida ... 74
nodifer, Lathridius ... 82
novemdecimpunctata, Anisosticta ... 70
obscurus, Agriotes ... 74
obtusus, Tachyporus ... 82
obtusus, Trechus ... 29
octodecimguttata, Myrrha ... 69
orbiculare, Coelostoma ... 73

PAGE
orbiculatus, Rugilus 71
Orectochilus 22
ovalis, Proteinus 69
ovata, Amara 73
padi, Cyphon 69
pallidulus, Agriotes 74, 82
pallidum (=luteum), Eusphalerum . 82
pallipes, Asaphidion 29
palustris, Notiophilus 29
parallelogrammus, Hygrotus 72
parallelipipedus, Dorcus 82
pedator, Staphylinus 30, 84
pedicularius, Kateretes 74
pennatus, Gabrius 73
phellandrii, Prasocuris 76
piceus, Calathus 29
picipes, Quedius 73
picirostris, Miccotrogus 74
pilicornis, Loricera 29
planirostris, Rhinosimus 84
pollinarius, Ceuthorhynchus 74
polygoni, Gastrophysa 74
pubescens, Pseudophonus (=rufipes, Harpalus) 29
pulchellus, Cleopus 30, 79
pulicaria, Anaspis 84
pulverosus, Rantus 72
pumicatus, Stomis 76
pusillus, Cryptocephalus 30, 79
pyrrhoceras, Curculio (Balanobius) . 79
quadridens, Ceuthorhynchus 74
quadrimaculatus, Cidnorrhinus 74, 82
quadripunctata, Clytra 6
quadripunctata, Harmonia 50, 86
quadripunctatus, Enochrus 72
quadripunctatus, Exochomus 69
quatuordecimpunctata, Prophylea . 82
redtenbacheri, Nephus 86
reticulatus, Bolitophagus 12
riparius, Elaphrus 73
rubiginosus, Cassida 74
rubripes, Harpalus 29, 71, 73
rufa, Cantharis 79
rufatus, Dorytomus 30
ruficollis, Rhinosimus 84
ruficorne, Agonum 29
ruficornis, Grammoptera 79
rufilabris, Anaspis 82
rufipes, Harpalus (Pseudophonus pubescens) 29
rufipes, Notiophilus 73
rufipes (=signatus), Tachinus 73
rufitarsis, Harpalus 29, 73
rufus, Oxyporus 13
salinus, Anthicus 7
scabrosus, Procerus 12
scrophulariae, Cionus 79
sculpturatus, Oxytelus 84
PAGE
seladon (=subpunctatus), Harpalus . 79
semirufus, Xantholinus 30
septempunctata, Coccinella 69, 82
sericeus, Cytilus 30, 69, 74
sexpunctatum, Agonum 75
signaticollis, Berosus 72
similata, Corticarina 82
signatus (rufipes), Tachinus 73
sodalis, Badister 29, 73
sordidum, Philorinum 73
spinibarbis, Leistus 69, 73
spinosus, Berosus 72
sputator, Agriotes 71
staphylaea, Chrysolina 74
stephensi, Bembidion 13, 29
strenuus, Pterostichus (Feronia) 73
subpunctatus (seladon), Harpalus ... 79
sylvatica, Cicindela 12, 86
taeniatus, Dorytomus 69
tardus, Harpalus 71
tempestivus, Bagous 72
terricola, Pristonychus 29
testacea, Microcara 74
testaceus, Claviger 4
testaceus, Stilbus 82
tetrastigma, Phyllotreta 74
transversa, Crepidodera 82
tristis, Aleochara 71
tuberculosus, Cionus 83
tumidulus, Phaedon 71, 74, 84
typhoeus, Typhaeus 4
turbatus, Ceuthorhynchus 71
unicolor, Bruchidius 74
umbratilis, Philonthus 71
unicolor, Epuraea 69
unicolor, P. varians ab. 73
urticae, Brachypterus 82
ustulatum, Bembidion 29
varius, Philonthus 73
verbasci, Bradycellus 29
vestitus, Brachypterolus 79
vestitus, Chlaenius 9
viduum, Agonum 73
vigintiquattuorpunctata, Subcoccinella 71
violacea, Chrysolina 12, 80
violaceus, Carabus 29
virideaeris, Phyllobius 79
viridis, Cassida 74
vittata, Cassida 7

CRUSTACEA.

Hermit Crab 16
rugosa, Cenobita 16

DICTYOPTERA.

americana, Periplaneta 12
carcinus, Neoblatella 2

PAGE

cranifer, Blaberus 16
discoidalis, Blaberus 7
floreana, Eurycoris 7
Giant Cockroaches 16
lapponicus, Ectobius 75, 76

DIPTERA.

Agromyzidae 151
albimargo, Pegomyia 152
albostriatus, Syrphidis (Syrphus) ... 83
alternata, Zonosema 22
amoena, Trypanea 22
anthracina, Agromyza 151
angelicae, Phytomyza 151
argyrocephala, Campiglossa 22
artemisiae, Spilographa 22
auribarbis, Cephenomyia 45
bardanae, Tephritis 22
bidentis, Paroxyna 22
blotii, Myopites 22
caesia, Myiolia 22
capitata, Ceratites 22
cardui, Urophora 21
cerasi, Rhagoletis 22
chalybeata, Chrysogaster 83
cognata, Prionimera (Acidia) ... 22, 151
colon, Trypeta 22
cometa, Tephritis 22
conjuncta, Tephritis 22
conura, Tephritis 22
conyzae, Phytomyza 151
cornuta, Ceriocera 22
cornuta, Vidalia 22
cuspidata, Urophora 22
discoidea, Platyparella 22
falcata, Trypeta 22
flavifrons, Phytobia 151
flavipennis, Oxyna 22
formosa, Tephritis 22
frauenfeldi, Myopites 22
genupuncta, Pegomyia 153
glechomae, Napomyza 151
grandinata, Campiglossa 22
guttularis, Ditricha 22
helianthi, Acanthiophilus 22
hendeliana, Phytagromyza 151
heraclei, Philophylla 22, 152
hyoscyami, Tephritis 22
ilicis, Phytomyza 151
immaculata, Spilographa 22
impressa, Chilomyia (Cheilosia) ... 83
inanis, Volucella 84
jaceae, Chaetorellia 22
jaceana, Urophora 22
leontodontis, Tephritis 22
loewiana, Paroxyma 22
longicauda, Terellia 22
loricata, Trypeta 22

PAGE

marginata, Sphenella 22
microceras, Ceriocera 22
miliaria, Xyphosia 22
misella, Paroxyna 22
Muscidae 152
nigritarsis, Pegomyia 153
onotrophes, Chaetostomella 22
paludosa, Tipula .... 105, Pl. VII
parietina, Oxyna 22
parvula, Paroxyna 22
permunda, Phagocarpus 22
pipiens, Syritta 83
plantaginis, Paroxyna 22
poeciloptera, Platyparea 22
posticata, Phytobia 151
proboscidea, Oxyna 22
pupillata, Hoplochaeta 22
quadrifasciata, Urophora 22
ruficauda, Trypeta 22
rufipes, Agromyza 151
rufipes, Physocephala 83
ruralis, Tephritis 22
separata, Tephritis 22
serratulae, Terellia 22
setifemur, Chirosia 152
solstitialis, Chrysogaster 83
solstitialis, Urophora 22
sonchi, Ensina 22
spinifrons, Vidalia (Spilographa) 22, 152
spoliata, Urophora 21
steini, Pegomyia 153
stellata, Trypanea 22
strigata, Liriomyza 151
stylata, Urophora 21
succincta, Epicampocera 83
tessellata, Paroxyna 22
toxoneura, Rhacochlaena 22
tricincta, Syrphella (Syrphus) 83
Trypetidae 151
tussilaginis, Trypeta 22
vectensis, Trypeta 22
vespertina, Tephritis 22
vitripennis, Syrphella (Syrphus) ... 83
volvulus, Phyllomyza 83
westermanni, Icterica 22
winthemi, Trypeta 22
woedemanni, Goniglossum 22
zoë, Spilographa 22, 152

FISH.

Jenny Heniver 2

FERNS.

capillus-veneris, Adiantum 139
Maidenhair Fern 139
regalis, Osmunda 75, 77
Royal Fern 75, 77

PAGE

FLOWERING PLANTS.

absinthium, Artemisia 72
acaule, Cirsium 83
acetosa, Rumex 153
acetosella, Rumex 153
acris, Erigeron 88
acris, Ranunculus 31
amara, Cardamine 74
anglica, Genista 77
angustifolium, Chamaenerion ... 74, 87, 88
Annual Knawel 81
annuus, Scleranthus 81
aquifolium, Ilex 151
aquilinum, Pteridium 152
arborea, Lavatera 116
Arbutus 1
Arctium sp. 80
arenaria, Ammophila 98
arenarius, Elymus 92, 96
articulatus, Juncus 69, 94
arundinacea, Festuca 96, 99
arvense, Cirsium 14, 88, 152, 153
arvense, Trifolium 81
arvensis, Sherardia 79
arvensis, Sonchus 150
asper, Sonchus 150
atrorubens, Epipactis 137
baccata, Taxus 70
barbatus, Dianthus 25
Bats-in-the-Belfry 79
Betula 115
biflora, (= capensis) Impatiens 83
Birdsfoot 81
Blackthorn 80
Bloody Cranesbill 139
Bog Myrtle 49
botrys, Teucrium 87
bracteosa, Ruta 50
Broom 73
Burdock 80
caerulea, Molinia 115
Calamagrostis 95, 96
Campanula 85
campestre, Acer 12
cannabinum, Eupatorium 15, 83, 151
canum, Helianthemum 139
capensis (biflora), Impatiens 83
caprea, Salix 38
Carex 92, 95
catharticum, Linum 79
catharticus, Rhamnus 76, 88
carota, Daucus 88
Celastrus 14
chamaecistus, Helianthemum ... 76, 79
chamaepitys, Ajuga 87
cicutarium, Erodium 81
Cistus 1

PAGE

claviculata, Corydalis 81
Cock's-foot grass 12, 98, 100
columbaria, Scabiosa 83, 88
Common Dodder 81
Common Rockrose 79
Common Storksbill 81
communis, Lapsana 150
conyza (squarrosa), Inula 85, 151
coronopus, Plantago 4
Corylus 118
Crataegus 70
crispus, Carduus 153
crispus, Rumex 45
crocata, Oenanthe 82
cucubalus (inflata), Silene ... 83, 142, 151
Cupressus 34
curta, Carex 77
cynanchica, Asperula 79
Cypress 34
Dark Red Helleborine 137
decidua, Larix 70
Dense flowered Orchid 137
dioica, Antennaria 144
dioica, Urtica 114, 119, 151
Dogwood 80
dulcamara, Solanum 14, 88
Dyer's Rocket 79
dysenterica, Pulicaria (Inula) 77
Earth-nut 76
Echinops 85
echioides, Picris 149
effusus, Juncus 69
epithymum, Cuscuta 81
erucifolius, Senecio 152
europaeus, Euonymus 14, 77
europaeus, Ulex 119
Evening Primrose 85
farfara, Tussilago 152
farnesiana, Acacia 11
ferruginea, Digitalis 86
Field Madder 79
fluitans, Eleogiton 70
fragrans, Petasites 151
fullonum, Dipsacus 72
gale, Myrica 32, 49
glabra (montana), Ulmus 25
glauca, Kalmia 75
Globe Thistle 85
glomerata, Dactylis 12, 98, 100
glutinosa, Alnus 115
Golden Rod 77
graminea, Stellaria 82, 88
Gramineae 92
graveolens, Ruta 50
Gromwell 15
Hairy Violet 79
Harebell 81
hederacea, Glechoma 151

PAGE

helenium, Inula 85
helleborine, Epipactis 11
Hemp Agrimony 15
Heracleum (exotic) 82
herbaceum, Dosycnium 85
Hieracium 148
hirta, Viola 79
Hoary Rockrose 139
hybridus (ovatus), Petasites 83, 151
Hypericum sp. 88
inflata (=cucubalus), Silene 83, 142, 151
intacta, Neotinea 137
Inula 70, 80
Iris 92
jacobaea, Senecio 151, 152
japonicus, Euonymus 8, 9
Jointed Rush 94
Juncus 92, 118
Juniperus 118
lanata, Digitalis 86
lanceolata, Plantago 83
lantana, Viburnum 84, 85, 88
lappa, Arctium 153
latifolia, Typha 82
laureola, Daphne 79
Lithospermum sp. 15
littoralis, Atriplex 72
lupulina, Medicago 121
lupulus, Hamulus 82
lutea, Digitalis 86
luteola, Reseda 79
lutetiana, Circaea 87, 88
lychnitis, Verbascum 79
Lymegrass 92, 96
macrocarpa, Cupressus 34
maculatum, Conium 71, 72
majus, Conopodium 76
malus, Pyrus (=sylvestris, Malus) .. 87
Maple 80
maritima, Artemisia 72
maritima, Silene 142
Marram Grass 98
maximum, Chrysanthemum 152
Michaelmas Daisy 12
millefolium, Achillea 73, 77, 81, 88
minima, Filago 81
minor, T. pratensis s.sp. 148
minus, Arctium 153
minus, Chaenorrhinum 79
monorchis, Herminium 8
montana (=glabra), Ulmus 25
montanum, Epilobium 12
moschata, Malva 87
Mountain Avens 139
Musk Orchid 8
Myrtus 1
myrtillus, Vaccinium 38
Narcissus 5

PAGE

Nepenthes 15, 22
Nettle 114, 119
Nettle-leaved Bell Flower 79
nigra, Ballota 71
nigra, Centaurea 149, 150
nigra, Populus 25
nodiflorum, Apium 152
octopetala, Dryas 139
Oenothera sp. 85
officinale, Cynoglossum 151
officinale, Lithospermum 89, 151
officinale, Nasturtium 8
officinale, Symphytum 151
officinale, Taraxacum 149
officinalis, Saponaria 151
officinarum, Mandragora 10
o'kellyi, Orchis maculata 137
oleraceus, Sonchus 151
olusatrum, Smyrnium 152
ovatus (=hybridus), Petasites 83
Pale Wood Violet 79
palustris, Eleocharis 75
Pansy 6, 10
Paronychia sp. 11
pentandra, Salix 115
periclymenum, Lonicera 151
perfoliata, Blackstonia 79
perpusillus, Ornithopus 81
pestifer, Salsola 14, 72
Phillyrea 1
Phragmites 92, 93, 94, 96, 97, 98
pilosella, Hieracium 148
Pitcher Plants 15, 22
plantago-aquatica, Alisma 70
porrifolius, Tragopogon 72
pratensis, Tragopogon 148
pseudacorus, Iris 9
ptarmica, Achillea 76
Purging Flax 79
Quercus 120
radicata, Hypochaeris 148
rafflesiana, Nepenthes 22
Red Bartsia 88
reichenbachia, Viola 79
Rosebay 73, 76, 80
rotundifolia, Campanula 81
rotundifolia, Drosera 78
Rue 50
rubra, Spergularia 81
rubrum, Melandrium 152
Russian Thistle 14
Salicornia 88
salina, Spergularia 7
Sand-spurrey 81
sanguineum, Geranium 139
sativa, Pastinaca 70, 151
saxifraga, Pimpinella 14
Saxifrage 7

PAGE
scabiosa, Centaurea 149, 150
Scirpus 92, 93
scorparius, Sarrothamnus 73
scorodonia, Teucrium 99
sempervirens, Buxus 118
serpyllum, Thymus 87, 116, 143
Sicilian Rue 50
Slender Cudweed 81
Small Toadflax 79
Sparganium 92, 93
sphondylium, Heracleum 151, 152
spinosa, Prunus 76
Spotted Orchid 137
Spring Gentian 139
Spurge Laurel 79
Squinancy Wort 79
squalidus, Senecio 152
squarrosa (=conyza), Inula 85, 151
stramonium, Datura 72, 83
Sundew 75, 78
Swamp Cypress 77
Sweet William 25
sylvatica, Stachys 120
sylvestris, Angelica 73, 76, 77, 82, 151, 152
sylvestris, Anthriscus 76
sylvestris, Malus (malus, Pyrus) 87
sylvestris, Pinus 115, 122
Taraxacum 28
tenerum, Phyteuma 87
tetrahit, Galeopsis 83, 151
Thistles 152
torminalis, Sorbus 14
trachelium, Campanula 79, 87
Traveller's Joy 139
trichophyllus, Ranunculus 71
tripolium, Aster 71, 88
Typha 92, 93
ulmaria, Filipendula (Spiraea) 83
Ulmus 119
Valeriana sp. 82
verna, Gentiana 139
verna, Odontites 88
verum, Galium 7
Viper's Bugloss 79
virgaurea, Solidago 77, 151
vitalba, Clematis 83, 139
vulgare, Cirsium 153
vulgare, Echium 79
vulgare, Ligustrum 85
vulgare, Limonium 72
vulgaris, Aquilegia 77
vulgaris, Artemisia 71
vulgaris, Carlina 70
vulgaris, Linaria 25, 88
vulgaris, Senecio 152
Watercress 8
White Climbing Fumitory 81
White Mullein 79

PAGE
Wild Thyme 143
Wood Sage 99
Yellow Wort 79

FUNGI.

acervatus, Merasmius 89
adustus, Polyporus 99
aeruginosa, Stropharia 89
Agaric 13
annosus, Fomes 90
auricula-judae, Auricularea 90
badia, Galactinia 84
badius, Boletus 82
betulinus, Polyporus 90
brumalis, Polyporus 70
caesius, Polyporus 90
campanulatus, Panaeolus 89
camphoratus, Lactarius 87
campestris, Psalliota 89
caninus, Mutinus 90
cervinus, Pluteus 89
chrysaspis, Hygrophorus 89
chrysenteron, Boletus 82
cinerea, Daedalea 90
concentrica, Daldinia 69, 90
confluens, Merasmius 88, 89
conopilea, Psathynella 89
crustuliniformis, Hebeloma 89
cucumis, Naucoria 87
cyanoxantha, Russula 25
cyathula, Lactarius 87
disseminata, Psathyrella 89
dryophilus, Merasmius 84
edulis, Boletus 82
elastica, Leptopodia 87
elegans, Boletus 87
fastigiata, Inocybe 84, 89
felleus, Boletus 82
fimbriatus, Geaster 88
flaccida, Clitocybe 84
Fomes 12
geophylla, Inocybe 89
geotropa, Clitocybe 25
gibbosa, Trametes 90
giganteus, Polyporus 87
gilva, Clitocybe 89
gracilis, Psathyrella 89
hepatica, Fistulina 26
hirsutum, Stereum 90
hypoxylon, Xylaria 90
incarnata, I. pyriodora var. 89
inclinata, Mycena 25
ionides, Tricholoma 89
Lactarius 89
lacteus, Polyporus 90
lascivum, Tricholoma 89
lilacina, I. geophylla var. 89
lutea, Russula 87

PAGE
luteus, Boletus 82
maculata, Collybia 25
maura, Omphalia 87
mellea, Armillaria 89
Merasmius 89
mollis, Crepidotus 89
nebularis, Clitocybe 25, 89
nigrescens, Hygrophorus 87
nigricans, Russula 89
ochroleuca, Russula 25, 89
papilionaceus, Panaeolus 89
peronatus, Merasmius 87, 89
petaloides, Pleurotus 88, 89
picaceus, Coprinus 89
pistillaris, Clavaria 87
plicatilis, Coprinus 89
puniceus, Hygrophorus 84
pura, Mycena 89
pyriforme, Lycoperdon 90
pyriodora, Inocybe 89
pyrogalus, Lactarius 89
quercina, Daedalea 26, 89
radicata, Collybia 84, 89
reticulatus, Boletus 82
rotula, Merasmius 11, 89
rubescens, Amanita 82
rubescens, Trametes 90
Russula 89
sapinea, Flammula 25
scaber, Boletus 82
scutellata, Ciliaria 90
sororia, Russula 87
spectabilis, Pholiota 25
squamosus, Polyporus 89
stipticus, Panus 89
stricta, Clavaria 87, 89, 90
terreum, Tricholoma 89
triplex, Geaster 88, 89, 90
turbinatus, Cortinarius 88
ulmarius, Fomes 26
vaginata, Amanitopsis 25
varius, Polyporus 89
versicolor, Polystictus 69, 90
versipellis, Boletus 82
virescens, Russula 87
viscidus, Boletus 87
viscosa, Calocera 90
vulgare, Crucibulum 89, 90
wynnei, Merasmius 89

HEMIPTERA.

acuteangulus, Gonocerus 118
adenocarpi, Orthotylus 119, 133
albicinctus, Psallus 117
albiventris, Trioza 69
alnicola, Psallus 115
alienum, Cryptostemma 115, 129
alpestris, Calocoris 114, 126

PAGE
alpinus, Acompocoris 115, 128
ambulans, Mecomma 113
ampliata, Tingis 116, 130
angustata, Tingis 117
antennatus, Teratocoris 113
apterus, Pyrrhocoris 116, 122, 131
argentatus, Athysanus 35
avenius, Aneurus 115
beckeri, Megacoelum 119
bedwelli, Myrmedobia 119
bicolor, Pachylopus 119, 134
bicolor, Tenthecoris 122
bidens, Picromerus 86
bonnairei, Aëpophilus 119
brevis, Nabis 117
calthae, Aphalara 69
Calocoris 114
capucina, Lasiacantha 116, 131
cardui, Tingis 116, 130
caricis, Cyrtorhinus 114, 116
carinatus, Arctocorisa 114
caudatus, Palus (Cosmotettix) 35
Chlamydatus 113
cinnamomeus, Aradus 121
confusus, Pilophorus 122
constrictus, Dicyphus 114, 127
cursitans, Sciocoris 118
depressus, Aradus 69
dispar, Mecomma 114
ditomoides, Metapoplax 119, 121, 135
dumosa, Jalla 117
ericae, Nysius 117
evanescens, Chlamydatus 114
fabricii, Stollia 120, 136
fagi, Cryptococcus 69
fallenoidea, Sigara 113
flavicornis, Aethus 118
flaveolus, Fieberocapsus 113, 118, 132
flavomaculatus, Capsodes 119
fuliginosa, Dictyonota 119
fuliginosus, Odontoscelis 118
fuscescens, Orthotylus 115
fuscispinus, Carpocoris 120
geminus, Tytthus 113
gimmerthali, Acetropis 120, 133
Gonocerus 118
gothicus, Alloeotomus 122
grisea, Elasmucha 84, 115
guttula, Prostemma 118, 120
halophilus, Henestaris 117, 131
harwoodi, Physatocheila 119
holsatum, Stenoderma 115, 127
hortulanus, Tinicephalus 116
inconspicua, Myrmedobia 119
juniperina, Pitedia 120
laciniata, Phyllomorpha 11
laevis, Aneuris 115
laticeps, Henestaris 117, 131

PAGE
leptocerus, Heterocordylus ... 117
limbatus, Lygocoris ... 120
limbatus, Taphropeltus ... 119
luridus, Psallus ... 115
magnicornis, Atractotomus ... 115
major, Calocoris ... 114
marginata, Coreus ... 76
Mecomma ... 113
melanocephalus, Cymus ... 118, 132
melanocephalus, Phylus ... 120, 133
m-flavum, Hadrodemus ... 119
nemorum, Anthocoris ... 116
nicolasi, Campylomma ... 122
nigricornis, Elatophilus ... 114, 121, 136
norvegicus, Calocoris ... 114
nubilus, Bathysolen ... 120
ochrotrichus, Orthotylus ... 119, 133
Odontoscelis spp. ... 118
olivaceus, Deraeocoris ... 119, 121
palliceps, Phylus ... 119, 120, 134
pinetellum, Plesiodema ... 115, 121
prasina, Palomena ... 116, 117
pseudoferus, Nabis ... 117
punctulatus, Geotomus ... 118
punctatus, Lygus ... 114
pygmaea, Microvelia ... 117
pygmaeus, Tytthus ... 114, 116
quadratus, s. Ischnodemus ... 121
resedae, Kleidocerys ... 115
rolandri, Aphanus ... 118
rufoscutellatus, Gerris ... 117
rugulipennis, Lygus ... 116
sabuleti, Ischnodemus ... 121, 122, 135
saltitans, Chlamydatus ... 113, 116, 126
saundersi, Teratocoris ... 116, 129
simplex, Oncochila ... 116
solitarius, Macrotylus ... 116
stachydis, Dicyphus ... 115
Stenodema ... 116
subulata (=viridula), Empoasca ... 35
sulcatus, Capsodes ... 119, 134
Teratocoris ... 113
thymi, Nysius ... 117
tibialis, Heterocordylus ... 117
ticinensis, Henestaris ... 117
valesianus, Dichrooscytus ... 117
venusta, Sigara ... 119
verbasci, Campylomma ... 121
verna, Campylosteira ... 116
virens, Orthotylus ... 115, 126
viridiflavus, Oncotylus ... 116
viridis, Teratocoris ... 113, 127
viridissima, Palomena ... 117
viridula, (subulata) Empoasca ... 35
viridula, Nezara ... 122
wagneri, Lygus ... 114
waltlii, Arenocoris ... 118, 132

PAGE
wollastoni, Callicorixa ... 113
wilkinsoni, Chlamydatus ... 113, 126

HYMENOPTERA.

Abia ... 38
Arge ... 38
Athalia ... 38
caulicola, Aylax ... 149
centaureae, Phanacis ... 150
Cynipidae ... 148
Dolerus ... 38
fitchi, Aylax ... 149
hercyniae, Gilpinia ... 107
hieracii, Aulacidea ... 148
hypochoeridis, Aulacidea ... 148
jaceae, Isocolus ... 149
laevinodis, Myrmica ... 18
lampsanae, Timaspis ... 150
Macrophya ... 38
nylanderi ? Leptothorax ... 7
palliatorius, Amblyteles ... 84
pilosellae, Aulacidea ... 148
rogenhoferi, Isocolus ... 149
rufa, Formica ... 6, 7
scabiosae, Isocolus (Aulax) ... 149
sertifer, Neodiprion ... 102, Pl. VI
sonchi, Timaspis ... 150
subterminalis, Aulacidea ... 148
temula, Tenthredo ... 77
Tenthredo ... 38
taraxaci, Gilletia ... 149
tragopogonis, Aulacidea ... 148
Trichiosoma ... 38

LEPIDOPTERA.

abdominalis, A. caja ab. ... 43
abruptaria, Menophra ... 5
absinthii, Cucullia ... 9, 10, 16, 18, 19, 21
aceris, Apatele ... 10
achatinella, Nyctegretes ... 38
achlyoessa, A. caja ab. ... 43
aclea, A. caja ab. ... 43
acuminatana, Hemimene ... 83
acuminatella, Phthorimaea ... 83
acuta, Plusia ... 42, 48, Pl. II
addenda, P. argus ab. ... 40
adusta, Eumichtis ... 48
advenella, Euzophora ... 84
aegeria, Pararge ... 41, 74, 84, 141
aeriferana, Ptycholomoides ... 37
aerugula, Roeselia (=trituberculatus Celama) ... 38
aescularia, Alsophila ... 40
aestiva, X. biriviata ab. ... 38
aethiops (blandina), Erebia ... 31, 33, 35
aethiops, Telphusa ... 5
affinis, Cosmia ... 24
affinitana, Phalonia ... 71
agathina, Amathes ... 27

PAGE

agestis, Aricia 6, 43, 47
aglaia, Argynnis 18, 39, 83, 140, 141
alba + ultraradiata, A. agestis ab. 39
albescens, L. bellargus ab. 28
albescens + antiradiata, L. bellargus ab. 18
albicillata, Mesoleuca 45, 79, 80
albilinea, J. fasciana ab. .... 31, Pl. III
albipuncta, Leucania 9, 13, 21, 26, 35, 100
albipunctata (pendularia), Cosymbia 35, 77
albipunctella, Depressaria 76
albisignata, C. ruficornis ab. 48
albomedia, A. caja ab. 43
albovenosa, Simyra 36
albulata, Asthena 77
alchemillata, Perizoma 82
algae (cannae), Nonagria 23, 93
alni, Apatele ... 9, 10, 19, 21, 23, 25, 26, 27, 35, 48, 49
alniaria, Deuteronomos 26, 31
alpicola, Amathes 48
alpinana, Hemimene 26
alpium, Moma (orion, Dipthera) 21, 23
alsines, Caradrina 26
alstroemeriana, Depressaria 71, 76
alternata, Epirrhoë 19
alticolella, Coleophora 27, 69
altheae, Carcharodes 44
amata, Colothysanis 24, 80
ambigua, Caradrina 38, 45
ambigualis, Scoparia 37
American Wainscot 99
amphidamus, Chrysophanus 42, 67
Anaitis xlv
anceps, Hama (Heliophobus) (saponariae) 48
anceps, Notodonta 81
angelicella, Depressaria 73, 76
angularia, E. quercinaria ab. 38
angustalis, Synaphe 80
angustana, Euxanthis 81, 86
angustimargo, L. coridon ab. 40
annulata, Cosymbia 27
anomala, Stilbia 27
anommata, M. jurtina ab. 23
Antheraea 105
antialba, M. jurtina ab. 17
antiaurolancea, M. jurtina ab. 19
anticaeca, L. coridon ab. 46
anticaeca + postradiata + sagittata, L. coridon ab. 23
anticrassipunctata, P. icarus ab. ... 17
antidiscoelongata, L. phlaeas ab. ... 17
antidiscoelongata+postlimbojuncta, L. coridon 18
antiglomerata, L. bellargus ab. 43
antijuncta, L. bellargus ab. 40

PAGE

antiobsoleta + albescens, L. coridon. ab. 17
antiopa, Nymphalis 42
antiquana, Endothenia 26
antiradiata, P. icarus ab. 46
antistriata, L. bellargus ab. 43
antiultradiscreta, P. icarus ab. 46
apicella, Coleophora 82, 88
apiformis, Sesia 41
apollinus, Doritis 44
applana, Depressaria 76
aquana, Notocelia 85
arceuthata, E. intricata ab. ... xlvi, 38
Archanara 91
archippus, Basilarchia 12
arcuata, L. coridon ab. 17, 44
arcuella, Argyroploce 78
arcuosa (=minima), Petilampa 30
arenella, Depressaria 73
Arenostola 91
areola, Xylocampa 3, 32
arete, A. hyperantus ab 42
argentula, Coleophora 88
argentula (= olivana), Eustrotia ... 27, 30, 48
argiolus, Celastrina 82
argus, Plebejus ... xlvi, 40, 43, 44, 57, 81
argyrognomon, Lycaena 42
arion, Maculinea 18, 36
armigera, Heliothis 19, 40, 41, 52
artaxerxes, A. agestis var. 47
aruncella, Micropterix 28
ashworthi, Amathes 26, 48
asinalis, Mecyna 143
aspersana, Acleris 88
assimilata, Eupithecia 26
asteris, Cucullia 21, 46, 88
atalanta, Vanessa 4, 84, 89
atomaria, Ematurga 75, 78, 140
atomosa, C. trituberculatus f. 38
atrescens + suffusa, L. coridon ab. 43
atrata, Odesia 27
atricapitana, Phalonia 46
atriplicella, Phthorimaea 28
atropos, Acherontia ... 9, 13, 15, 19, 23, 24, 26, 27, 32, 36, 37, 41, 47
aurago, Tiliacea 36, 88
aurata, Rhodaria 26, 80
aurea, C. pamphilus ab. 42
aurifera, Plusia 41
aurinia, Euphydryas ... 4, 17, 18, 23, 141
auroguttella, Gracillaria 88
ausonia, Euchloë 44
australis, Aporophyla 31
autumnaria, Ennomos ... 3, 10, 24, 25, 38
avellanella Semiscopis 69
aversata, Sterrha 42, 44
bacheri, Bryopolia 45

PAGE
balcanicus, Tarucus ... 44
baliodactylus, Alucita ... 21, 80, 83
barbalis, Herminia ... 18, 77
barrettii, Hadena ... 27
basijuncta, L. coridon ab. ... 44
baumanni, Charaxes ... 47
beatricella, Lozophora ... 46, 71, 72
belemia, Euchloë ... 44
belisaria, N. io ab. ... 33
bellargus, Lysandra ... 18, 23, 28, 43
bennetii, Agdistis ... 27
berberata, Coenotephria ... 24
betulae, Thecla ... 23
betularia, Biston ... 24, 34, 40, 41, 86 Pl. II
bicoloria (= furuncula Procus) ... 30
bicostella, Pleurota ... 28
bicuspis, Harpyia (Cerura) ... 22, 23, 26, 35, 48
bidentata, Gonodontis ... 5, 19, 22, 24, 35, 145
bifasciata, Perizoma ... 88
bifractella, Aristotelia ... 70
bilineata, Euphyia ... 80
bi-I-nigrum, L. coridon ab. ... 17
bilunana, Eucosma ... 78
bilunaria, Selenia ... 3, 22, 34, 35, 70
bimaculosa, Meganephria ... xxxvii
binaria, Drepana ... 37
bipunctata, C. maritima f. ... 95
bipunctella, Ethmia ... 27
bipunctidactyla, Stenoptilia ... 78
bipupillata, C. pamphilus ab. ... 17
biriviata, Xanthorhoë ... 5, 8, 21, 26, 28, 31, 37, 38, 41, 45, 49
biselata, Sterrha ... 18
bisselliella, Tineola ... 105, 108
bistortata, Ectropis ... 24, 49, 69, 70, 77
bistriga, Cryptoblabes ... 21
brizella, Aristotelia ... 28, 46
Black Mountain Moth ... 45
Blair's Wainscot ... 95
blanda, Caradrina ... 49
blandina, (= aethiops) Erebia ... 31, 33, 35
blandiata, Perizoma ... 143
blomeri, Discoloxia ... 37, 49
boeticus, Cosmolyce ... 44
boisduvalii, Caligula ... 9
bombycina, (glauca) Hadena ... 18, 48
bondii (=morrisii), Arenostola ... 30, 92, 96
Bond's Wainscot ... 96
borealis, P. fuliginosa ab. ... 37
bractea, Plusia ... 27
brassicae, Mamestra ... 142, 143
brassicae, Pieris ... 84, 104, 105, 107, Pl. VIII
PAGE
brevilinea, Arenostola ... 92, 96
brevipennis, L. quercus var. ... 154
Brighton Wainscot ... 97
britanniodactylus, Capperia ... 26
brizella, Aristotelia ... 28, 46, 72
brongniardella, Acrocercops ... 78
Brown-line Bright-eye, The ... 100
Brown Veined Wainscot ... 94
brunnea, A. monoglypha ab. ... 38
brunneata, E. autumnaria ab. ... 25, 38
brutus, Charaxes ... 47
bufo, Dendrolimus ... 45
Bulrush Wainscot ... 93
buoliana, Evetria ... 28, 75
burrenensis, A. gilvaria ab. ... 143
büttneri, Sedina ... 92, 95
caeca, A. hyperantus ab. ... 42
caeca, L. bellargus ab. ... 28
caeca, L. coridon ab. ... 23, 40
caeca + glabrata, L. coridon ab. ... 46
caernensis, P. argus ab. ... 47, 57
caerulea, P. icarus ab. ... 40
caeruleo, L. coridon ab. ... 17, 46
caesia, Hadena ... 49, 142, 144
caesiata, Entephria ... 27, 49
caespititiella, Coleophora ... 46, 69
caja, Arctia ... 3, 15, 20, 28, 30, 38, 48, 71
c-album, Polygonia ... 16, 23, 40, 73, 82, Pl. II
caledoniana, Argyrotoza ... 38
caliginosa, Acosmetia ... 23, 35
callunae, L. quercus ab. ... 141
calodactyla, Platyptilia ... 77, 78
calthella, Micropterix ... 28, 73, 74
cambrica, Venusia ... 23, 35, 37
camilla, Limenitis ... 41
candiope, Charaxes ... 47
cannae, (= algae) Nonagria ... 93
capsophila, Hadena ... 48, 142
capsophila, H. lepida ab. ... 27, 31
captiuncula, Phothedes ... 27, 48, 49, 142
capucina, Lophopteryx ... 40, 81, 84
cardamines, Euchloë ... 41, 72, 74, 78
cardui, Vanessa ... 42, 105
carlinella, Metzneria ... 21, 70
carmelita, Odontosia ... 26, 35, 48
carphodactyla, Oidematophorus ... 21, 28, 42, 85, 87
carpinata, Trichopteryx (Nothopteryx) ... 3, 27, 35
castanea, Amathes ... 75
castanea, L. coridon ab. ... 37
castigata, Eupithecia ... 88
castor, Charaxes ... 47
castrensis, Malacosoma ... 22, 27
caudana (= ermargana), Acleris (Rhacodia) ... 86
caudellus, Ypsolophus ... 77

PAGE

celerio, Hippotion 14, 31
centrago, A. xerampelina ab. 30
centripunctata, M. tiliae ab. 45
ceronus, L. bellargus ab. 23, 40
cervinalis, Calocalpe 31
cerysi, Thais 44
cespitis, Tholera 45
chaerophylli, Depressaria 46
Charaxes 47
chenipodiata, Ortholitha 42
chlorosata, Lithinia 74
christiernana, Hypercallia 144
christyi, Oporinia 24, 26, 71
chrysanthemana, Cnephasia 11
chrysippus, Danaus 44
chrysitis, Plusia 24
chryson, Plusia 15, 17, 25, 41
chrysorrhoea, Euproctis 72
cinerea (=denticulata), Agrostis 21, 33
cinxia, Melitaea 4, 40
circellaris, Agrochola 27, 30
circumsignata, O. gothica ab. 31
Cirphis 91
citrata, Dysstroma 31
citronea (=sulphurea), P. napi f. ... 20
citronella, P. napi f. 20
clarensis, E. semele s.sp. 140
clathrata, Chiasmia 40
clavis, Agrotis 18, 40
Clay, The 100
clorana, Earias 17, 21
clostera, A. caja ab. 43
cnicicolana, Eucosma 46
c-nigrum, Amathes 36, 37, Pl. II, Pl. III
Coenobia 91
coerulata, Hydriomena 20
coeruleocephala, Episema 27
cognatella, Hyponomeuta 37
colquhounana, Cnephasia 144
comes, Triphaena 20, 40, 41
comma, Hesparia 28, 85
comma, Leucania 98
Common Wainscot 97
complana, Eilema 26
complanella, Tischeria 78
compta, Hadena (Miselia) ... 23, 24, 25, 36, 38, 48, 49
concolor (=extrema), Arenostola 92, 95
Concolorous 95
confluens, A. selene ab. 36
confluens, L. coridon ab. 23
confluens, Z. lonicerae ab. 35
confluentae, L. coridon ab. 39
confusalis, Celama (Nola) xlv
conicolana, Laspeyresia 46
conigera, Leucania 100
consociella, Euzophera 77, 78
consolidata, A. caja ab. 3

PAGE

consonaria, Ectropis 48
conspersa, Hadena 18
contaminana (=rhombana), Acleris (Peronea) 83, 85
contaminellus, Crambus 45, 81
contigua, Hadena 18, 48
conturbatella, Mompha 28, 73
conversaria, A. repandata ab. 27, 41, 48
convolvuli, Herse ... 13, 19, 21, 26, 27, 31, 36, 41, 47, 50
conwagana, Pseudargyrotoza 84
coracina, Psolos (Psodos) 45
coridon, Lysandra ... xlvi, 17, 18, 23, 28, 33, 39, 43, 44, 46, 47, 84, 85
corticania, Argyroploce 26
corylana, Pandemis 88
corylata, Electrophaës 77
Cosmopolitan, The 99
cossus, Cossus 21
costajuncta, L. coridon ab. 17
costajuncta, P. icarus ab. 40
costovata, X. fluctuata ab. 22
crassalis (fontis), Bomolocha 24, 27, 48
crassichevro, P. argus 39
crassipuncta, A. agestis ab. 40
crataegi, Aporia 4, 108
crataegi, Trichiura 21, 72
crataegella, Scythropia 28
crenata, Apamea 18, 49
crenata, Gluphisia 7, 49
cretacella, Homoeosoma 21
cribraria, Coscinia 24
cribrumalis, Zanclognatha 26, 27
cristana, Acleris (Peronea) 85
crocealis, Psammobius 77, 80, 82
croceus, Colias 39
cruciana, Argyroploce 26
cruda, O. gracilis ab. 33
cuculata, Euphyia 7, 21
cuculatella, Nola 10, 26
cucullina, Lophopteryx 9, 27, 47
culiciformis, Aegeria 78, 86
culmellus, Crambus 80, 81
cultraria, Drepana 84
cursoria, Euxoa 25
curtula, Clostera 23
curzoni, E. satyrata ab. 34
cydippe, Argynnis 28, 42
cithaeron, Charaxes 47
dahlii, Diarsia 27
debiliata, Chloroclystis 25
decemgutella, Ethmia ... 15, 28, 37, 46, 89
decorella, Mompha 26
decolorata, T. pronuba ab. 33
defoliaria, Erannis 74
degeerella, Nemotois 78
delicate, The 99
delineata, O. luteolata ab. 33

PAGE

denotata, Eupithecia 21, 28, 85, 87
dentalis, Cynaeda 21
denticulata (cinerea), Agrotis ... 21, 33
dentina (=nana), Hadena 140
deplana, Eilema 23, 36, 42, 70
derasana (=unculana), Ancylis ... 84
derivalis, Paracolax 21, 26
derivata, Anticlea (Coenotephria) .. 73
designata, Xanthorhoë 73, 84
Devonshire Wainscot 99
dextransversa + descrescens, A. agestis ab. 43
didymogramma, Derthisa 45
dilucidana, Lozopera 70
dilutata, Oporinia 27
dilutella, Pempelia 80
dipoltella, Phalonia 15, 88
discoelongata, L. bellargus ab. 23
discoidajuncta, L. coridon ab. 18
discojuncta, A. caja ab. 35
discordella, Coleophora 83
discreta, A. agestis ab. 40
discreta, L. bellargus ab. 23, 43
discreta + virgularia + albescens, L. coridon ab. 17
dispar, Lymantria 108
dissoluta, Nonagria 94
distinctaria, Eupithecia 26
ditrapezium, Amathes 18, 48
dodonea (trimacula), Drymonia 48, 51
dominula, Panaxia (Callimorpha) 4, 34
Double-line, The 100
dromedarius, Notodonta 26, 48
druceanus, Charaxes 47
dubitata, Triphosa 137
duplaris, Tethea ... 18, 24, 27, 45, 48, 137
eblanaria, S. bilunaria ab. 35
eburnata, Sterrha 24
edlesteni (=neurica), Nonagria 94
efformata, Anaitis ...... 29, Pl. III
electa, Catocala 7
elinguaria, Crocalis 19, 22, 24
elpenor, Deilephila 87
elymi, Arenostola 30, 48, 92, 96
emargana (caudana), Acleris (Rhacodia) 86
embla, Erebia 67
emutaria, Scopula 26
epilobiella, Anybia 46, 70
epiphron, Erebia 31, 37, 49, 115
ericinella, Aristotelia 81
erigerella, Coleophora 46, 88
erosaria, Deuteronomos 23
ethalion, Charaxes 47
ethiocles, Charaxes 47
euphorbiae, Apatele 142
euphrosyne, Argynnis 16, 17, 23, 33, 41, 74, 140

PAGE

Eupithecia sp. 84
evidens, M. trigrammica ab. 38
evonymella, Hyponomeuta 37
exanthemata, Cabera 80
excessa, M. tithonus ab. 17
excessa, M. jurtina ab. 17
exclamationis, Agrotis ... 7, 8, 18, 24, 25, 31
exigua, Laphygma 27
extersaria, Ectropis 77
extimalis, Evergestis 31, 49
extrema (concolor), Arenostola 27, 92, 95
extrema, L. coridon ab. 44
exultana, Zygaena 31
fabriciana, Anthophila 73
fagana (=prasinana), Bena 77
fagaria, Dyscia 28, 75
fagella, Diurnea (Chimabache) 69
fagi, Stauropus 23, 26, 35, 45, 47, 48
faginella, Lithocolletis 73
fagoniae, Leobates 45
f-album, P. c-album ab. 40
falcataria, Drepana 37
falsellus, Crambus 45
farinatella, Cedestis 69
fascelina, Dasychira 44, 45, 75
fasciana (pygarga), Jaspidia 26, 35, 48
fasciaria, Ellopia 19
fasciata, S. lutea ab. 34
fasciella, Nemotois 5, 46, 71
fausta, Teracolus 44
favicolor, Leucania 22, 27, 92, 97
fenestrata, G. bidentata ab. 41
Fen Wainscot 96
Fenn's Wainscot 96
ferrugalis, Hapalia 26, 42, 49, 87
ferrugana, Acleris (Peronea) 69
festucae, Plusia 17, 19, 36
filipendulae, Zygaena 41
fimbrialis, Thalera 21
fimbriata, Lampra 26
fischeriella, Glyphipterix 28
Flame Wainscot 95
flammea, Meliana 92, 95
flava, P. napi f. 20
flavago, Gortyna 36, 80
flavescens, C. icteritia ab. 45
flavescens, L. coridon ab. 40
flavicans, E. lurideola ab. 142
flaviciliana, Phalonia 83
flavicincta, Entephria 7, 27
flavicornis, Achlya 48, 69
flaviventris, Aegeria ... 2, 3, 11, 21, 41, 45, 69, 76
flavosignata, A. caja ab. 43
flexula, Laspeyresia 26, 70
florida, Diarsia 29, 38
fluctuata, Xanthorhoë 15, 18, 27

PAGE
fluctuosa, Tethea 26, 48
fluviata (=obstipata), Nycterosia (Nyctosia) 36, 37
fluxa (hellmanni), Arenostola ... 18, 96
fontis (=crassalis), Bomolocha ... 27, 48
formosana, Lozotaeniodes (Eulia) ... 11, 19, 37, 38, 45, 49
forskåleana, Tortrix 84
fosterana, Tortrix 26
fowleri, L. bellargus ab. 43
fowleri, L. coridon ab. 17 23, 46
fowleri + margino, L. coridon ab. .. 46
Foxglove Pug 139
frangulella, Buccalatrix 88
fraterna, N. typhae ab. 93
fraxini, Catocala .... xlvi, 39
frigga, Brenthis 67
fuciformis, Hemaris 32
fugax, Rhodinia 9
fuliginaria, Parascotia ... xlvi, 4, 23, 24, 26, 28, 45, 69
fuliginosa, Phragmatobia 37
fulva (= pygmina), Arenostola 95
fulvago (= icteritia), Cirrhia ... 36, 41, 45
fulvana, Eucosma 26
fumidescens, L. coridon ab. 43
fumata, T. pronuba ab. 33
fumosa, E. venosata, ab. 34
funebrana, Laspeyresia 46
funebris, Anania 21, 77
fungella, Ethmia 27, 37
furcata, Hydriomena 35, 36, 80
furcula, Harpyia (Cerura) ... 23, 26, 40, 48
furfurana, Bactra 46, 75
furuncula, (bicoloria) Procus 30
furva, Apamea 48, 142, 143
furvescens, L. bellargus ab. 43
fusca, A. caja ab. 43
fusca, Dioryctria 75, 78
fuscantaria, Deuteronomos 24, 26
fuscata, M. abruptaria ab. 5
galactodactyla, Alucita 19
galathea, Agapetes (Melanargia) ... 18, 32, 39
galiata, Epirrhoë 140
galba, Chilades 44
galii, Celerio ... 9, 23, 27, 37, 40, 41, 44
gamma, Plusia 7, 8, 41, 51, 86
ganarew, L. sinapis ab. 29
Garden Tiger 104
geminipuncta, Nonagria 24, 93
gemmaria, (=rhomboidaria) Cleora .. 70
geniculeus, Crambus 83
genistae, Coleophora 77
gentianana, Endothenia 28, 72
geofrella, Oecophora 78
gerningana, Philedone 142

PAGE
gilvago, Cirrhia 25, 30
gilvaria, Aspitates 80, 143
gilvicomana, Phalonia 46
glabraria, (= jubata) Alcis 19
glabrata, L. coridon ab. 39, 43, 46
glareosa, Amathes 27, 37
glauca, (=bombycina) Hadena ... 18, 48
glaucinalis, Pyralis 26
globulariae, Procris 23
glomerata, L. coridon ab. 23
gnaphalii, Cucullia 21
gnoma, Pheosia 31
goedartella, Argyresthia 69
gonodactyla, Platyptilia 26
goossensiata, Eupithecia 81
gothica, Orthosia 21, 31
gothicina, O. gothica ab. 31, 48
gracilis, Orthosia 23, 32, 35, 49, 50
graminis, Cerapteryx 15
granitella, Acrolepia 85
Grayling, The 140
grisea, L. coridon ab. 17
griseola, Eilema 45, 82
grossana, Laspeyresia 14
grossulariata, Abraxas 139, 140
grotiana, Capua 46
guttea, Ornix 87
gyrata, C. puppillaria ab. 40
halterata, Lobophora 26
hastata, Eulype 10, 77
hastiana, Acleris 1, 86
hamellus, Crambus 86
haworthiata, Eupithecia 83
haworthii, Celaena 23, 27
hebudium, E. pulchellata 139
hecla, Colias 67
hectaploa, A. caja ab. 43
hellmanni (= fluxa), Arenostola ... 96
helvola, Anchoscelis 27, 30, 36
hepatica (tincta), Polia 24, 36
hethlandica, H. conspersa ab. 34
hexacha, A. caja ab. 43
hibernica, L. phlaeas s.sp. 140
hirtaria, Lycia 3, 4, 31, 38, 41, 70
hispidaria, Apocheima 3, 24, 48, 51
hispulla, M. jurtina r. 41
hostilis, Dioryctria 21
hucherardi, Hydraecia ... 21, 23, 25, 26, 36, 48
hutchinsoni, P. c-album var. 39
hyale, Colias 4
hybridus Smerinthus xlvi
hyalinalis Microstega 80
hyemana, Acleris (mixtana, Peronea) 38
hyperantus, Aphantopus ... 17, 18, 42, 80
hypericana, Lathronympha 78
hypericella, Depressaria 28, 85

PAGE
icarus, Polyommatus ... 17, 39, 41, 46, 77, 80, 85, 141
icteritia (fulvago), Cirrhia ... 36, 41, 45
icterodactyla, Alucita ... 27, 142, 143
ilicifolia, Epicnaptera ... 7
illigerella, Epermenia ... 82
immorata, Scopula ... 23, 26, 35
immutata, Sterrha ... 23, 48
impudens (= pudorina), Leucania ... 98
impuncta, L. phlaeas ab. ... 17
impura, Leucania ... 30, 98
inaequalis, L. coridon ab. ... 46
incanana, Eana (Cnephasia) ... 28, 74
incerta, Orthosia ... 3, 24
incertana, Cnephasia ... 73
incongruella, Amphisbatis ... 27
infesta (sordida), Apamea ... 30, 33
inframarginata, L. coridon ab. ... 17, 23
inframelaina + ultraalbocrenata + metallica, L. coridon ab. ... 46
infuscata, A. monoglypha ab. ... 36
infuscata, H. coerulata, ab. ... 20
inquinatellus, Crambus ... 81
insularia, B. betularia ab. ... 35
interrogationis, Plusia ... 23
interjecta, Triphaena ... 23, 45
intermedia, O. luteolata ab. ... 33
intricata, Eupithecia ... 38
inturbata, Eupithecia ... 41
io, Nymphalis ... 40, 71, 72, 80, 84, 85
iota, Plusia ... 17, 44
iris, Apatura ... 6, 18, 23, 24, 32, 36
irregularia, L. coridon ab. ... 43
irregularis, Anepia ... 22
irriguata, Eupithecia ... 40
irrorella, Setina ... 21, 48, 141
isabellae, Graellsia ... 7
jahlusa, Charaxes ... 47
japonica, Caligula ... 9
jesous, Azanus ... 44
jonasii, C. boisduvalii s.sp. ... 9
jordana, Thaumetopea ... 44
jubata (glabraria), Alcis ... 19
juncta, A. exclamationis ab. ... 38
juniperata, Thera ... 85
jurtina, Maniola ... 17, 24, 28, 39, 41, 42, 71, 79, 80, 84, 141
juvernica, L. sinapis ab. ... 140
kilmunella, Elachista ... 38
lacertinaria, Drepana ... 37
lacunana, Argyroploce ... 78, 80
laetana, Ancylis ... 78
l-album, Leucania ... 26, 45, 92, 99
lanceolata, A. hyperantus ab. ... 23, 42
lanestris, Eriogaster ... 141
lantanella, Lithocolletis ... 84
lapella, Metzneria ... 80
lapidata, Coenocalpe ... 31
lapidea, Lithophane ... 34
lapidea? Lithophane ... 33
lapponaria, Poecilopsis (Nyssia) ... xlvi
Large Wainscot ... 97
laricella, Coleophora ... 70
lariciata, Eupithecia ... 77
latifasciana, Argyrotoza ... 82, 85
latifasciata, O. dilutata ab. ... 41
latiora, C. pamphilus ab. ... 42
latiora, L. coridon ab. ... 40, 43
latiorana, Eucosma ... 78
latistrius, Crambus ... 19
lavatherae, tauricus Carcharodes ... 44
leporina, Apatele ... 19, 24, 35, 44, 48
lethe, Euchromia ... 2
Leucania ... 91, 92, 95
leucophaearia, Erannis ... 51
leucostigma, Celaena ... 17, 23
libatrix, Scoliopteryx ... 86
lichenaria, Clerodes (Cleora) ... 48
lichenea, Eumichtis ... 41
lignata, Orthonama ... 23
lignea, Blastobasis ... 85
ligustri, Craniophora ... 36
ligustri, Sphinx ... 24, 84, Pl. VIII
limoniella, Goniodoma ... 28, 72
linariata, Eupithecia ... 88
linearia (trilinearia), Cosymbia ... 35, 37, Pl. VI
lineola, Coleophora ... 19, 71
lineolata (=virgata), Mesotype ... 35
literosa, Procus ... 18
lithargyria, Leucania ... 100
lithodactylus, Oidematophorus ... 87
litterata, Diasemia ... 19, 31
littoralis, Leucania ... 98
litura, Anchoscelis ... 26
liturata, Semiothisa ... 19, 75
liturella, Depressaria ... 83
livia, Virachola ... 11
livornica, Celerio ... 9, 24
loewii, Polyommatus ... 44
lonicerae, Zygaena ... 35
loreyi, Leucania ... 92, 99
lubricipeda (menthastri), Spilosoma 11, 24, 26, 36, 38, 42, 48, 77
lucernea, Ammogrotis ... 27, 140
luctuata, Euphyia ... 21, 25, 26, 28, 37, 42, 77
lunaedactyla, Marasmarcha ... 21, 80
lundana, Ancylis ... 73
luneburgensis, A. lutulenta f. ... 143
lunigera, A. trux s.sp. ... 26, 27
lunosa, Omphaloscelis ... 26
lunula, Calophasia ... 16, 21, 23, 25, 36
lunulata, A. caja ab. ... 43
lupulina, Hepialus ... 140
ulrideola, Eilema ... 142

PAGE

lutea, Citria ..... 26, 49, Pl. II
lutea, P. napi f. 20
lutea, Spilosoma 38, 48
lutealis, Hapalia 82, 83
luteolata, Opisthograptis 18, 38
lutescens, E. quadripunctaria var. .. 24
lutescens ?, M. tiliae ab. 8
lutosa, Rhizedra 30, 92, 97
lutulenta, A. caja ab. 43
lutulenta, Aporophyla 143
lychnidis, Agrochola 24, 26
lychnitis, Cucullia 48
Lymegrass 96
machaon, Papilio 44, 50, 112
macilenta, Agrochola 27, 34, 51
macularia, Pseudopanthera 77, 140
maculipennis, Plutella 86
malvae, Pyrgus 77
malvella, Platyedra 87
margaritellus, Crambus 19, 27
marginata, Lomaspilis 24, 34, 77
marginata, L. coridon ab. 23, 46
marginepunctata, Scopula 26
maritima, Buccalatrix 71
maritima, Chilodes 18, 92, 94
maritima, Heliothis 25, 26, 45
Mathew's Wainscot 97
matura, Thalpophila 41, 143
maura, Mormo 35
mediodeleta, A. caja ab. 43
mediofasciata, C. dia ab. 21
megera, Pararge 84
Meliana 91
meliana, A. selene ab. 36
mellinata, Lygris ..... 18, Pl. III
menthastri (=lubricipeda), Spilosoma 11, 24, 26, 36, 38, 42, 77
Mere Wainscot 96
mesomella, Cybosia 18
messingiella, Eidophasia 46
metallica, L. coridon ab. 46
metallica + transparens, L. coridon ab. 46
metaxella, Nemophora 74
meticulosa, Phlogophora ... 18, 71, 104, Pl. VII & VIII
micacea, Gortyna (Hydraecia) 33
millefoliata, Eupithecia ... 15, 21, 22, 48, 88
miniata, Miltochrista 25, 26
minima (arcuosa), Petilampa 30, 35
minimus, Cupido 42, 141
miniosa, Orthosia 77
minor, L. phlaeas 17
minorata, Perizoma 143
minos (=purpuralis), Zygaena 141
minutissimus, L. coridon ab. 39

PAGE

minutissimus + albocrenata, L. coridon ab. 39
miscella, Mompha 76
mixtana, Peronea (=hyemana, Acleris) 38
modestella, Metriotes 28
moerens, D. sannio ab. 34
monacha, Lymantria ... 44, 77, 102, 107, 108
moneta, Polychrisia 26
monodactyla, Emmelina 26
monoglypha, Apamea (Xylophasia) 41, 49
monosema, A. caja ab. 43
montanata, Xanthorhoë ... 18, 80, Pl. III
mori, Bombyx 101, 102, 106, 109, Pl. VII
morrisii (bondii), Arenostola ... 30, 92, 96
mucronata, Ortholitha 11
mucronella, Donacaula 19
multistrigaria, Colostygia 21
munda, Orthosia 3, 35
munitata, Xanthorhoë 27, 37, 41
murana, Eudoria (Scoparia) 38
muricata, Sterrha 23, 27
muralis, Cryphia ..... xlvii, 18
muscerda, Pelosia 23
musculana, Syndemis (Tortrix) 74
musculosa, Oria 24, 34, 91, 92, 97
mylitta, Antheraea 105
myricae, A. euphorbiae ab. 142
myrtillata, Gnophos 143
myrtilli, Anarta 26, 75
nana (dentina), Hadena 140
napi, Pieris ... 18, 19, 20, 39, 43, 78, 80, 84
nastes, Colias 67
nebulosa, Polia 27, 48
nemoralis, Agrotera 21
nemorellus, Ypsolophus 26
neophanes, Euzophera (Myelois) 69
nerii, Daphnis xxxvi
nervosa, Depressaria 82
neurica (edelsteni), Nonagria 94
neustria, Malacosoma 141
nigra, A. megacephala ab. 33
nigra, A. urticae ab. 35
nigra, G. bidentata ab. 41
nigra, L. hirtaria ab. 33
nigrata, A. caja ab. 43
nigrata, Pyrausta 80, 85
nigrescens, P. argus ab. 40
nigricans, Euxoa 14
nigrina, L. camilla ab. 33
nigristriata, C. maritima f. 95
nigrocaria, P. c-album ab. 36
nigrocilliata, A. caja ab. 35
nigrofulvata, S. liturata ab. 33, 40
nigromaculana, Eucosa 26

PAGE
nigro-rubida, A. crenata ab. 18
nitens, Polia 27
nitidella, Argyresthesia 84
noctuella, Nomophila 86
nocturnata, C. clathrata ab. 40
nodicolella, Mompha ... 46, 70, 76, 80
Nonagria 91, 92
nostrodamus, Gegenes 44
notata, Semiothisa 35, 77
notatella, Telphusa 86
nubeculosa, Brachionycha 18
nubila, L. coridon ab. 17, 43
nubilalis, Anania 26, 45, 71
nutantella, Coleophora 83

obeliscata, Thera 19
oblitella, Heterographis ... xxxvii, 5, 28, 39, 45, 72
Obscure Wainscot 98
obsoleta, A. agestis s.sp. artaxerxes ab. 31
obsoleta, L. bellargus ab. 28, 40
obsoleta, L. coridon ab. ... 17, 39, 40, 44
obsoleta, Leucania 17, 27, 92, 98
obsoletella, Phthorimaea 28, 72
obstipata (fluviata), Nycterosia (Nyctosia) 36, 37
obsitalis, Hypena 35
ocellaris, Cirrhia 21, 24, 25, 45
ochrearia, Aspitates (Crocota) ... 19, 38
ochrodactyla, Platyptilia 45
ochroleuca, Eremobia 84
ocularis, Tethea 19, 26, 27, 37
oleagina, Synvaleria xxxvii
oleracea, Diataraxia 31
olivacea, L. coridon ab. 46
olivalis, Hapalia 80
olivana (argentula), Eustrotia ... 27, 30, 48
oo, Dicycla 10, 23
orbicularia (=pendularia), Cosymbia 35
ophiogramma, Apamea 17, 18, 45
or, Tethea 35, 40, 77
Oria 91
orion, Dipthera (=alpium, Moma) .. 21
ornata, Scopula 37, 49
ornatella, Pempelia 21, 143
ornitopus, Lithophane (Graptolitha) 27
ostrinalis, Rhodaria 26
otregiata, Lampropteryx ... xxxvi, xlvi
oxyacanthae, Allophyes 27

padella, Hyponomeuta 37
palaemon, Carterocephalus ... 18, Pl. III
palealis, Loxostega 21
palleago, C. gilvago ab. 30
pallens, Leucania 30, 97, 98
pallida, A. urticae ab. 39
pallidactyla, Platyptilia 26, 76

PAGE
pallifrontana, Laspeyresia 46
pallorella, Depressaria 26, 46
paludis, Hydraecia 18, 30
paludum, Trichoptilus ... 26, 28, 45, 75, 78
palumbella, Dioryctria 26
palustraria (pygmaeata), Eupithecia 31
palustris, Hydrillula 14, 25, 31
pamphilus, Coenonympha ... 17, 27, 40, 75, 77, 84, 141
pandalis, Microstega 77
paphia, Argynnis 28, 32, 33, 39, 42
papilionaria, Geometra (Hipparchus) 44, 73
paradoxa, A. segetum ab. 33
parasitella, Tinea 78
parthenias, Archiearis 69, 74
partimflavescens, A. agestis ab. 43
partimtransformis, L. coridon ab. ... 39
partimtransformis, P. argus ab. 39
parvidactylus, Oxyptilus 80
pascuellus, Crambus 49, 78
pastinum, Lygephila 17, 26
paurobalia, A. caja ab. 43
pectinataria, Colostygia 77, 80, 87
pedaria (= pilosaria), Phigalia ... 22, 24, 31, 32, 51
pellionella, Tinea 105
peltigera, Heliothis 19
pendularia (= albipuncta), Cosymbia 35, 77
pendularia (orbicularia), Cosymbia 35, 48
pennaria, Colotois ... 24, 25, 26, 34, 38
penarcha, A. caja ab. 43
pentaploa, A. caja ab. 43
perla, Cryphia 26, 34
pernyi, Antheraea 105
persicariae, Melanchra 20, 44
petasitis, Gortyna (Hydraecia) 17
petiverella, Hemimene 81, 82, 83
pflugiana, Eucosma 73, 76
phillipsi, A. icterodactyla ab. 143
philodice eurytheme, Colias 107
philoxenus, C. tullia 47
phisadis palaestinensis, Colotois 44
phlaeas, Lycaena ... 6, 17, 32, 84, 140, 141
phlomides, Hesperia 44
phoebe (= tritophus), Notodonta 7
phragmitellus, Chilo 19
phragmitidis, Arenostola 96
pigra, Clostera 86
pilosaria (pedaria), Phigalia ... 22, 24, 31, 32, 51
pilosellae (= purpuralis), Zygaena ... 141
pimpinellata, Eupithecia 14
pinastri, Hyloicus 23, 26, 35, 40
pinax, A. caja ab. 43

PAGE
piniaria, Bupalus 19, 34, 40
pisi, Ceramica 25, 33, 88
plantaginis, Parasemia 41
plagiata, Anaitis 74, 87
plecta, Ochropleura 37
plexippus, Danaus 12
plumbella, Hyponomeuta 37
plumigera, Ptilophora 48
polaris, A. urticae ab. 42
politana, Eulia (= pulchellana, Argyrotaenia) 81
polychloros, Nymphalis 6, 80
pomedaxana, Argyroploce 28
populata, Lygris 23
populella, Anacampsis 77
populi, Amorpha xlvi
populi, Laothoe 9, 41
populi, Poecilocampa 51, 75
porata, Cosymbia 20
porcellus, Deilephila 47
postaurolancea, M. jurtina ab. 19
postcaeca, L. coridon ab. 17
postexcessa, C. pamphilus ab. 42
postobsoleta, L. coridon ab. 17
postradiosa, L. coridon ab. 43
postvittana, Austrotortrix 11
potatoria, Philudora 71
poveyi, A. caja ab. 43
praecox, Actebia 18, 37
prasina, Anoplectoides 23, 35, 36
prasinana (= fagana), Bena 77
pratellus, Crambus 78
Privet Hawk 101
procellata, Melanthia 35, 79
proboscidalis, Hypena 18
promissa, Catocala 21
pronuba, Triphaena 12, 23
pronubana, Cacoecia 85
protea, Dryobotodes 73
prunaria, Angerona 48
pruni, Strymonidia 6, 24
pseudobombycella, Talaeporia ... 28, 70
pterodactyla, Stenoptilia 87
pudibunda, Dasychira ... 22, 23, 31, 34
pudorina (impudens), Leucania 98
pulchellana, Argyrotaenia (Eulia politana) 81
pulchrina, Plusia 17, 48
pulla, L. coridon ab. 36, 39, 43
punctaria, Cosymbia 18, 76
punctinalis, Pseudoboarmia (Boarmia) 77, 80
punctulata, Aethalina 76
puppillaria, Cosymbia ... 1, 12, 19, 26, 40, 41
purpuralis, Rhodaria 80
purpuralis (pilosellae, minos), Zygaena 26, 48, 141
pusaria, Cabera 74, 77, 80
puta, Agrotis .... 15, 41, 48, Pl. III
putrescens, Leucania 99
pygarga, (fasciana) Jaspidia ... 26, 35, 48
pygmaeata (palustraria), Eupithecia 31
pygmaeola, Eilema 21
pygmina (fulva), Arcnostola 30, 95
pyralina, Cosmia 18, 24
pyramidea, Amphipyra 18
quadra, Lithosia ... 19, 23, 25, 26, 27, 36, 38, 49
quadrana, Eucosma 77
quadrifasciata, Xanthorhoë ... 4, 17, 23, 45
quadripunctaria, Euplagia 2
quercifolia, Gastropache 39, 44
quercinaria, Ennomos 19, 48
quercus, Lasiocampa 30, 78, 141
quercus, Thecla 80
radiata, L. phlaeas ab. .... xxxvi, 39
radiosa, L. coridon ab. 46
ramburialis, Diasemia 31, 37, 40
rapae, Pieris ...... 80, 107, Pl. III and VIII
ramella, Eucosma 86
raschkiella, Mompha 80, 86, 87, 88
ravida, Spaelotis 27
rectangulata, Chloroclystis 9, 137
rectifasciana (= trifasciana), Isotrias 80
reducta, O. gothica ab. 33
Reed Wainscot 93
remissa, Apamea 18
repandata, Alcis (Cleora) ... 5, 11, 19, 24, 25, 26, 41, 42, 48
reticulata, Eustroma 23
revayana, Sarrothrippus 86
rhamniella, Walshia 76
rhamni, Gonepteryx ... 18, 70, 75, 80, 82, 86, 87
rheediana, Eucosma 75
rhombana (contaminana), Acleris (Peronea) 83, 85
rhomboidaria (gemmaria), Cleora ... 70
ripae, Agrotis 25, 30
rivata, Epirrhoë 26, 79
rivulana, Argyroploce 83
robsoni, P. nebulosa ab. 20
roseana, Phalonia 72
roseticolana, Laspeyresia 88
rostralis, Hypena 82
roystonensis, L. coridon ab. 46
rubi, Callophrys 16, 75, 80
rubi, Diarsia 7, 29
rubi, Macrothylacia 75, 83, 86, 88
rubricosa, Cerastis 3
rubidata, Euphyia 45, 79
rubiginea, Dasycampa 3

PAGE
rubra, A. caja ab. 43
rubricollis, Atolmis 21, 27, 89
rufa, A. caja ab. 23, 43
rufa, Coenobia 92, 94
ruficornis, Chaonia (Drymonia) 36
rufillana, Laspeyresia 83, 88
rugosana, Phtheocroa 80
rumicis, Apatele 24, 36
rupicapraria, Theria 35, 76
rutilus, L. dispar var. 4
sacraria, Rhodometra 21, 24, 27, 31
sagittata, Coenotephria 31
salicalis, Colobochyla 21, 26, 31
salicorniae, Coleophora 88
salicis, Leucoma 17
sambucaria, Ourapteryx 17, 27, 44
sanguinalis, Rhodaria 143
sannio, Diacrisia 78
saponariae (=anceps), Hama (Heliophobus) 48
satyrata, Eupithecia 26
scabiosata (=subumbrata), Eupithecia 26, 27
scabiosella, Nemotois 83
scabiosella, Lithocolletis 28, 83, 88
scabrellus, Ypsolophus 85
schalleriana, Agryrotoza ... 84, 85, 88
schmidtii, L. phlaeas ab. xxxvi
schrankella, Mompha 74
schultzii, A. caja ab. 43
schulziana, Argyroploce 27
scolopacina, Apamea 23, 35, 48
scopigera, Dipsosphecia 21
scotica, C. tullia var. 13, 39
secalis, Apamea 24
scriptella, Telphusa 46
setegum, Agrotis 104
selene, Argynnis ... 23, 41, 42, 43, 77, 141
semele, Eumenis 17, 19, 41, 81, 85, 140, 141
semiceronus, L. bellargus ab. 28
semifascia, Gracillaria 12, 80
semifasciana, Argyroploce 46
semifusca, Argyresthia 84
semi-nigra, A. urtica ab. 35
seminigrina, L. camilla ab. 33, 42
semirubella, Phycita 21, 80
semisyngrapha, L. coridon ab. ... 17, 24
semitestacella, Argyresthia 86, 88
senex, Comacla 45
sepella, Micropterix 74
sequellus, Ypsolophus 84
sericealis, Rivula 30
servillana, Laspeyresia ... 3, 27, 46, 69
sessilis, L. coridon ab. 37
sexalata (sexalisata), Mysticoptera 26, 48
sexalisata (=sexalata), Mysticoptera 26, 48
schalleriana, Argyrotoza (Peronea) 84
shepherdana, Acleris (Peronea) 82, 84
Shore Wainscot 98
Shoulder-striped Wainscot 98
silaceata, Ecliptopera 19
Silky Wainscot 94
Silkworm 101, 102
similana, Eucosma 86
sinapis, Leptidea 24, 32, 73, 140
sinelinea, A. brevilinea ab. 97
sinisflavescens, L. bellargus ab. 43
Small Copper 140
Small Rufous 94
Small Wainscot 95
smaragdaria, Thetidia (Euchloris) .. 27, 45, 72
smartaria, A. pruinaria ab. 52
smeathmanniana, Phalonia 76
Smoky Wainscot 98
sobrina, Triphaena 25
sodida, A. caja ab. 43
solandriana, Eucosma 81, 137
sordens, Apamea 33
sordida (=infesta), Apamea 30, 33
sororcula, Eilema 76
Southern Wainscot 98
spadicearia, Xanthorhoë 19
sparganii, Nonagria 24, 93
sparsana, Acleris (Peronea) 85, 88
sparsata, Anticollix 21
spartifoliella, Leucoptera 28, 73
sphecif ormis, Aegeria 21
sphinx, Brachionycha 78
spinolella, Lithocolletis 38
spissicornis, Coleophora 46
splendida, M. jurtina ab. 40
splendidella, Dioryctria ... 19, 21, 38, 40
sponsa, Catocala 21
sponsana, Peronea (=sparsana, Acleris) 85, 88
stabilis, Orthosia 76
stachydalis, Anania 31
statices, Procris 45, 76
steinerti, A. alni ab. 33
stigmatica, Amathes 15
stigmatella, Gracillaria 86
straminalis, Evergestis 80, 82
straminea, Leucania 17, 98
strataria, Biston 3, 22, 41, 49, 51, 70, 74
striana, Argyroploce 26
strigillaria, Perconia 78
strigula, Nola 25
Striped Wainscot 98
strobilella, Laspeyresia 70
suasa, Hadena 25
suavella, Euzophera 28, 75
subbistrigella, Mompha 12, 70
subocellea, Thiotricha 80

PAGE
subumbrata (scabiosata), Eupithecia 26, 27, 88
suffumata, Lampropteryx ... 73
suffusa, H. capsophila f. ... 142
suffusa, L. bellargus ab. ... 28
sulphurea (citronea), P. napi f. ... 20
suspecta, Parastichtis ... 17, 25, 38, 45, 48
Sussex Wainscot ... 94
swammerdamella, Nemophora ... 73
sylvestraria, Sterrha ... 26, 45
sylvestris, Thymelicus ... 17, 80, 84
syngrapha, L. coridon ab. ... 23, 33, 39, 46
syringaria, Apeira ... 4, 26, 44
taenialis, Schrankia ... 21
taeniata, Perizoma ... 27, 48
taeniolella, Stomopteryx ... 28
tages, Erynnis ... 141
taona, A. caja ab. ... 43
tapeta, A. caja ab. ... 43
Tapinostola ... 91
taras, P. malvae ab. ... 40
tarsipennalis, Zanclognatha ... 31
temerata, Bapta ... 73, 74, 76
templi, Dasypolia ... 48
tenebrata, Panemeria ... 30, 75
tenebrosa (=umbratica), Rusina 33, 42
tephradactylus, Oidematophorus ... 77
terminella, Mompha ... 87, 88
terrella, Mniophaga ... 28
tesserodactyla, Platyptilia ... 143
tesserana, Phalonia ... 80
testacea, Luperina ... 26, 30
testaceata, Hydrelia ... 21, 24
testata, Lygris ... 86
tetraquetrana, Eucosma ... 75
therinella, Coleophora ... 14, 88
thrasonella, Glyphipterix ... 26
thrax, Pelopidas ... 44
tiliae, Mimas ... 8, 9, 20
tincta, P. captiuncula s.sp. ... 142
tincta (=hepatica), Polia ... 24, 36
tithonus, Maniola ... 17, 36, 40, 41
torva, Notodonta ... 7
trabealis, Emmelia ... 24
transformis, C. pamphilus ab. ... 18
transformis, L. coridon ab. ... 40
transparens + metallica, L. coridon ab. ... 46
transversa, Eupsilia ... 27
tremula, Pheosia ... 21
triangulum, Amathes ... 37, 40
tridens, Calamia (Luceria virens) .. 92, 142, 143
trifolii, Lasiocampa ... 16, 21, 34
trifasciana (rectifasciana), Isotrias . 80

PAGE
trilinearia (=linearia), Cosymbia .. 35, 37, Pl. II
trimacula (=dodonaea), Drymonia 48
triplasia, Abrostola ... 36, 48, 49
tringipennella, Gracillaria ... 83
tripunctana, Eucosma ... 76
tristata, Epirrhoe ... 31, Pl. II
tritici, Euxoa ... 14, 19, 20, 30, 45
tritophus (phoebe), Notodonta ... 7
trituberculatus, Celama (aerugula, Roeselia) ... 38
trochilus, Chilades ... 44
troglodytella, Coleophora ... 77
truncata, Dysstroma ... 76, 77
truncicolella, Eudoria ... 78, 86
tullia, Coenonympha ... 37, 47, 49, 141
tullia, C. tullia ... 27, 47
turca, Mythimna ... 12, 24, 32, 100
turfosalis, Tholomiges ... 26, 27, 45
Twin Spotted ... 93
typhae, Nonagria ... 82, 93
typica, Phalaena ... 17
uliginosellus, Crambus ... 78
ultracaeruleo, L. coridon ab. ... 46
ultraconfluentiae, L. coridon ab. ... 17
ultrafowleri, L. coridon ab. ... 23
ultralavendula, L. coridon ab. ... 46
ultranubila, L. coridon ab. ... 17
ultrapunctata, L. coridon ab. ... 46
ultraviridescens, L. coridon ab. ... 46
umbratica (tenebrosa), Rusina .. 33, 42
unangulata, Euphyia ... 31
unanimis, Apamea ... 18
uncula, Eustrotia ... 17, 35
unculana (derasana), Ancylis ... 84
undulata, Calocalpe ... 25, 37, 86
unguicella, Ancylis ... 46
unicolor, A. xerampelina ab. ... 30
unifasciana, Tortrix ... 26
unionalis, Palpita, ... xxxvii, 1, 13, 14, 15, 16, 19, 26, 37, 40, 49
unipuncta, Leucania ... 91, 92, 99
upsilon, A. caja ab. ... 43
urticae, Aglais ... 27, 28, 35, 39, 42, 45, 46, 70, 71, 72, 79, 80, 82, 84, Pl. VI
urticae, Spilosoma ... 21
urticana, Argyroploce ... 26
vaccinii, Conistra ... 78
vallentini, A. galathea ab. ... 46
valerianata, Eupithecia ... 31, 82
valesina, A. paphia ab. ... 28, 39
varanes, Charaxes ... 47
varia, Lycophotia ... 19
variata, Thera ... 19
variegana, Acleris (Peronea) ... 85
venata, Ochlodes ... 80
venustula, Hapalotis ... 23, 26, 35
verbascalis, Anania ... 26

PAGE

verbasci, Cucullia 78
versicolor, Procus 18
vespertaria, Epione 25
vestigialis, Agrotis 45
vetulata, Philereme 76
viburniana, Tortrix 26
vigintipunctata, Hyponomeuta 45
villica, Arctia 15, 31, 35, 71
virens, Calamia (= Luceria virens) 92, 142, 143
viretata, Acasis 84
virgata (lineolata), Mesotype 35
viridata, Chlorissa 75
viridella, Adela 73
viridescens, L. coridon ab. 46
viridescens + metallica + transparens, L. coridon ab. 46
vitalbata, Horisme 21, 49
vitellina, Leucania ... 37, 40, 49, 92, 99
vulgella, Telphusa 26
w-album, Strymonidia ... 36, 39, Pl. III
Wainscots 91
wauaria, Itame .... 19, 25, Pl. III
Webb's Wainscot 93
White L Wainscot 99
White Speck, The 99
White-point, The 100
Wood White 140
wismariensis, C. maritima f. 95
wrighti, A. caja ab. 43
xanthographa, Amathes 41, 71
xerampelina, Atethmia 30, 36
xylostellus, Ypsolophus 26
ziczac, Notodonta 40, 48
zoolina, Charaxes 47
zophdactyla, Stenoptilia 80

MAMMALS.

europaeus, Lepus 114
Hedgehog 13
Hare, Blue 114
Hare, Brown 114
Hare, English 139
Hare, Irish 139
Hare, Varying 139
Pine Marten 139
timidus, Lepus 114

MECOPTERA.

borealis, P. germanica f. 32
germanica, Panorpa 32
hyemalis, Boreus 32

MEGALOPTERA.

lutaria, Sialis 6

PAGE

MOLLUSCA.

itala, Helicella 144
lentiginosa, H. itala 144
nemoralis, Cepaea 144

MOSSES.

hygrometrica, Funaria 69

NEUROPTERA.

angulatus, Eumicromus 32
annae, Parasemidalis 32
diptera, Psectra 32
fulvicephalus, Osmylus 29
pellucidus, Sympherobius 32

ODONATA.

cyathigerum, Enallagma 86
danae, Sympetrum 86
flaveolum, Sympetrum 29
pennipes, Platycnemis 80
splendens, Agrion 80
superstes, Epiophlebia 29

ORTHOPTERA.

aegyptum, Anacridium 16
aeroginosa, Polyspilota 16
albomarginatus, Chorthippus ... 14, 37
bimaculatus, Gryllus 2
brachyptera, Metrioptera 44
campestris, Gryllus 15
centralis, Sphodromantis 16
dorsalis, Conocephalus 37
Egyptian locust 16
Enyaliopsis sp. 16
Foaming Grasshopper 16
griseoaptera, Pholidoptera 37
lineola, Sphodromantis 51
macklotti, Orxines 16
marginata, M. brachyptera f. 44
ocellata, Pseudocreobotra 51
occidentalis, Platycleis 44
pantherina, Pseudochaeta 51
panzeri, Ectobius 84
parallelus, Chorthippus 14, 37
Praying Mantis 16
pulchrilolium, Phyllium 16
roeselii, Roeseliana (Metrioptera) ... 37
rufus, Gomphocerus 37
Spiny Grasshopper 16
spumans, Tapesia 16
subulata, Tetrix 74, 76
turrita, Acrida 16
verrucivorus, Decticus 39
vittatus, Poecilocerus 45
vittata, Tetrix 74

PAGE

REPTILIA.

Adder ... 71
Chameleon ... 16
gecko, Petries ... 16
petri, Stenodactylus ... 16
platiceps, Brookesia ... 16

TRICHOPTERA.

albifrons, Leptocerus ... 18
angustata, Molanna ... 18
angustipennis, Hydropsyche ... 18
aterrimus, Leptocerus ... 18
atomarius, Grammotaulius ... 17
azurea, Mystacides ... 18
cinereus, Leptocerus ... 18
conspersa, Triaenodes ... 18
decipiens, Limnephilus ... 18
dissimilis, Leptocerus ... 18
dorsalis, Rhyacophila ... 18
extricatus, Limnephilus ... 18
flavidus, Cyrnus ... 18

PAGE

fulvus, Leptocerus ... 18
grandis, Phryganes ... 17
hirtum, Lepidostoma ... 18
incisus, Limnephilus ... 18
lunatus, Limnephilus ... 18
marmoratus, Limnephilus ... 18
nervosa, Anabolia ... 18
ornatula, Hydropsyche ... 18
pellucidus, Glyphotaelius ... 18
phaeopa, Lype ... 18
radiatus, Halesus ... 18
rhombicus, Limnephilus ... 18
stellatus, Potamophylax ... 18
subnubilus, Brachycentrus ... 18
waeneri, Tinodes ... 18

MISCELLANEOUS.

Diplopoda sp. ... 16
Giant Millipedes ... 16
thomense, Schistometopum ... 16

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CONTENTS

PAGE

List of Plates iii

Objects, etc., of the Society iv

Instructions to Exhibitors and Speakers v

Past Presidents vi

List of Members vii

Geographical List of Members xxvi

Council's Report for 1957 xxxv

Treasurer's Report for 1957 xxxviii

Indoor Meetings 1

Annual Exhibition 19

President's Address 50

Field Meetings 60

The Variation of Euchloë cardamines L. Harold B. Williams 82

Notes on the Habits of Some Trypetidae (Diptera). M. Niblett 89

Cynips longiventris Htg. (Cynipidae Hym.). M. Niblett ... 92

Larvae of British Lepidoptera not figured by Buckler. G. Haggett 94

Unisexual dimorphism in a mirid (Hemiptera), Blepharidopterus angulatus (Fallén). Dennis Leston 100

The British Eriocraniidae and Micropterygidae. J. Heath ... 115

Book Review 126

LIST OF PLATES

I. Annual Exhibition, 26th October 1957 ... to face page 24

II. Annual Exhibition, 26th October 1957 ... to face page 39

III. Field Meeting Parties, Buckland, Surrey, and Challock, Kent ... ... to face page 63

IV. Field Meeting Parties, Burnham-on-Crouch, Essex, and Chipstead, Surrey ... to face page 74

V. The Variation of Euchloë cardamines L. ... to face page 88

VI. Larvae of British Lepidoptera not figured by Buckler ... ... to face page 96

VII. Larvae of British Lepidoptera not figured by Buckler ... ... to face page 98

VIII. The British Eriocranidae and Micropterygidae ... ... to face page 122

THE SOUTH LONDON
Entomological and Natural History Society

PEPYS HOUSE, 14 ROCHESTER ROW, WESTMINSTER, LONDON, S.W.1

OBJECTS

The Society has for its objects the promotion and advancement of research in Biological Science, and its diffusion by means of meetings at the Society's Rooms for the reading of original papers, discussions and lectures, by public exhibitions, by field meetings, by the issue of publications, the formation of typical collections and of a library, and by such other means as the Council may from time to time determine.

MEETINGS

Indoor Meetings at Rochester Row are generally held twice monthly, on second and fourth Thursdays at 6.30 p.m. Field Meetings take place throughout the Summer.

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The Society possesses representative collections of most orders of insects, and an extensive library. These are available at all Ordinary Meetings. Members may borrow books at meetings or by post. Donations of suitable insects and books are much appreciated.

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SMITHSONIAN INSTITUTION NOV 1 8 1958

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1949 Birkett, Neville L., m.a., m.b., b.chir. (cantab.), 3, Thorny Hills, Kendal, Westmorland. *l, c, d.*

1945 Blasdale, Philip, 10, Quarry Hill Road, Ilkeston, Derby. *ent.*

1949 Blathwayt, C. S. H., M.A. (OXON), F.R.E.S., " Amalfi," 27, South Road, Weston-super-Mare, Somerset. *l.*

1948 Blaxill, A. D., " St. Marthas," Braiswick, Colchester, Essex. *l.*

1926 Bliss, A., " Golden Mist," Whitford, near Axminster, Devon. *l.*

1925 Blyth, S. F. P., 6, Hatherley Road, Winchester, Hants. *l.*

1948 Bolingbroke and St. John, The Viscountess (née Frohawk, Valezina), Essendene, Cavendish Road, Sutton, Surrey. *nat. hist, ent.*

1948 Bolton, E. L., Lyncombe, Stagbury Avenue, Chipstead, Surrey. *l.*

1948 Bowater, Lt.-Col. W., M.C., B.D.S., T.D., D.L., 41, Calthorpe Road, Edgbaston, Birmingham, 15. *l, heredity.*

1944 Bowden, S. R., B.SC., A.R.C.S., F.R.E.S., 53, Crouch Hall Lane, Redbourn, Herts. *l, g.*

1946 Boyce, B., 16, Highland Road, Chichester, Sussex. *l.*

1948 Boyes, J. D. C., B.SC., A.R.I.C., A.R.P.S., Wimborne, Millfields, Nantwich, Cheshire. *l.*

1946 Bradley, J. D., F.R.E.S., *Council*, 53, Osterley Road, Isleworth, Middx. *l.*

1947 Bretherton, R. F., C.B., M.A., F.R.E.S., Ottershaw Cottage, Ottershaw, Surrey. *l.*

1933 Brett, G. A., B.SC., A.R.C.S., D.I.C., F.R.E.S., 2, Claygate Lane, Hinchley Wood, Esher, Surrey. *ent.*

1952 Brindle, Allan, F.R.E.S., 86, Princess Street, Nelson, Lancs. *ent.*

1940 Britten, H., M.M., F.R.H.S., F.INST.P.A., "Newholme," 21, Toller's Lane, Old Coulsdon, Surrey. *ent (Chalcididae).*

1930 Brooke, Miss W. M. A., F.L.S., Greenglade, Malvern Road, Liss, Hants. *ec, ent, b, marine life.*

1954 Brown, F. C., F.Z.S., 6, Osmond Gardens, Wallington, Surrey. *Giant Silk Moths.*

1952 Brush, H. J., "Larkspur", West Farm Close, Ashtead, Surrey. *ent.*

1952 Bryce, D., The Bungalow, Cliffe, Gt. Harwood, Blackburn, Lancs. *l, dip.*

1936 Buck, F. D., A.M.I.PTG.M., *Hon. Editor*, 36, Besant Court, Newington Green Road, London, N.1. *c.*

1955 Buckler, H. A., Sutton Bassett, Market Harborough, Leics. *l, ml.*

1927 Bull, G. V., B.A., M.B., " White Gables" Sandhurst, Kent. *l.*

1958 Burgess, Gp. Capt. L. W., B.A., "Knoleforth", 1, Brittons Cottages, North Weirs, Brockenhurst, Hants. *l.*

1946 Burkhardt, Col. V. R., late R.A., D.S.O., O.B.E., 86, Main Street, Stanley, Hong Kong. *l.*

1944 Burns, B. S., 1, Jamaica Villas, Stoke Road, Gosport, Hants. *l.*

1948 Burton, P. J., L.D.S., R.C.S.ENG., F.R.E.S., "Paysanne," Godshillwood, near Fordingbridge, Hants. *l.*

1938 Burton, R. J., l.d.s., r.c.s.eng., Dinky Cottage, 4, Stanway Road, Stanton, nr. Broadway, Worcs. *l.*

1947 Busbridge, W. E., Firwood, 4, Mount Harry Road, Sevenoaks. Kent. *l.*

1957 Bush, D. J. B., 20, Brockenhurst Road, Addiscombe, Surrey. *l.*

1953 Butterfield, A. W., 124, Ashville Road, Leytonstone, London, E.11. *l.*

1951 Byers, F. W., 59, Gurney Court Road, St. Albans, Herts. *l.*

1953 Cadbury, Mrs. Betty, 78, Oakley St., Chelsea, London, S.W.3. *l.*

1948 Calderara, P., a.m.i.e.e., "Stratton Lodge", 26, Manor Road, Barnet, Herts. *l, c.*

1957 Campbell, A. M. L., m.a., d.m., f.r.c.p., 79, Pembroke Road, Clifton, Bristol, 8. *ent.*

1945 Carlier, Stuart E. W., f.r.e.s., 6, Warwick Buildings, Warwick Road, Solihull, Warwickshire. *l, c.*

1950 Carolsfeld-Krause, A. G., Slotsherrens Have 97, (Kobenhavn)-Vanlose, Copenhagen, Denmark. *l.*

1956 Carter, C. I., 42, The Wells House, Well Walk, Hampstead, N.W.3. *ent. arachnology.*

1946 Carter, R. A., m.a., m.b., m.r.c.p., f.z.s., 72, Panton St., Cambridge. *c.*

1946 Chalmers-Hunt, J. M., f.r.e.s., 70, Chestnut Avenue, West Wickham, Kent. *l.*

1945 Charlson, S., 89, Market Street, Stalybridge, Cheshire. *l, ent, g.*

1956 Chatelain, R. G., 65, East Drive, St. Mary Cray, Kent. *l.*

1958 Chipperfield, H. E., f.r.e.s., 27, Chilton Avenue, Stowmarket, Suffolk. *lep, hym, col.*

1952 Christie, J., 137, Gleneldon Road, Streatham, S.W.16. *d.*

1945 Christie, L., *Lanternist*, 137, Gleneldon Road, Streatham, S.W.16. *ent.*

1954 Clark, J., 7, Park Road, Bognor Regis, Sussex. *ent.*

1951 Clarke, C. Astley, m.d., f.r.c.p. (Lond.), High Close, Thorsway, Caldy, Cheshire. *l.*

1936 Classey, E. W., f.r.e.s., 22, Harlington Road East, Feltham, Middlesex. *l.*

1934 Cole, G. A., m.a., f.c.a., Highfield, Westhumble, Dorking, Surrey.

1953 Coleridge, W. L., The Gnoll, Bishops Teignton, nr. Teignmouth, S. Devon. *ent, orn.*

1946 Collier, Major A. E., m.c., b.a., f.r.e.s., Lynher, Horsham Rd., Cranleigh, Surrey. *l.*

1936 Cooper, B. A., b.sc., a.r.c.s., f.r.e.s., Entomology Dept., Shardlow Hall, Shardlow, Derby. *c (Elateroidea), ecology, ec. ent, l, nat. phot. (Life Member).*

1947 Cornelius, J. A., 15, Ringmore Rise, Forest Hill, London, S.E.23. *l.*

1922 Couchman, L. E., F.R.E.S., 35, Browne Street, West Hobart, Tasmania. *l.*
1909 Coulson, F. J., "Burnigill", 24, Springfield Avenue, Merton Park, London, S.W.20. *c, hem, l.*
1918 Court, T. H., F.R.G.S., "The Pingle", Mill Road, Market Rasen, Lincs.
1947 Cox, W. A. A., 65, Bamford Road, Bromley, Kent. *ent.*
1950 Coxey, S., "Balcombe", 109, Regent Road, Bolton, Lancs. *l.*
1953 Coxon, G. F., "The White Cottage", Weald, Sevenoaks, Kent. *ent, nat. hist.*
1934 Craske, J. C. B., F.R.E.S., 33, Hinchley Drive, Hinchley Wood, Esher, Surrey. *l.*
1937 Craske, R. M., 22, Edge Street, Campden Hill, London, W.8. *ent.*
1918 Craufurd, Clifford, "Denny," Bishop's Stortford, Herts. *l.*
1933 Crewdson, R. C. R., F.R.E.S., " The Grange," Delamere, Northwich, Cheshire. *l.*
1947 Cripps, C. H., M.A., Bulls Head Farm, Eakley Lanes, Stoke Goldington, Newport Pagnell, Bucks. *l, rh.* (*Life Member.*)
1949 Cross, G. S. E., A.C.T.S.INC., 31, Avenue Road, Finchley, London, N.12. *l.*
1932 Crow, P. N., F.R.E.S., Ravensdale, Ockham Drive, Ockham Road, East Horsley, Surrey. *l.*
1950 Cruttwell, G. H. W., Old Ford House, Frome, Somerset. *ent.*
1954 Cue, P., " Lhasa," Malvern Road, Ashford, Kent. *ent.*
1947 Cunningham, D., M.A., 42, Rae Street, Dumfries. *l, flora.*
1950 Curl, B. J. A., 33, Fair Oak Road, Bishopstoke, Eastleigh, Hants. *l.*
1937 Curtis, A. E., F.R.E.S., " The Cottage," Ifold Estate, Loxwood, Billingshurst, Sussex. *l.*
1946 Curtis, W. Parkinson, F.R.E.S., M.S.B.E., Ladywell Cottage, Tower Road, Branksome Park, Bournemouth, Hants. *l.*

1956 Dacie, J. V., M.D., 10, Alan Road, Wimbledon, S.W.19. *l.*
1951 Daly, D. W., P.O. Box 1670, Salisbury, Southern Rhodesia. *ent.*
1927 Danby, G. C., "Sheringham", 53, Albion Road, Sutton, Surrey. *l.*
1956 Davidson, W. F., F.G.S., 9, Castlegate, Penrith, Cumberland. *l, c.*
1951 Davis, G. A. N., M.R.C.S., L.R.C.P., Holt Wood, Aylesford, Kent. *l.*
1933 Demuth, R. P., M.A., L.R.I.B.A., "Watercombe House", Waterlane, Oakridge, Stroud, Glos. *l.*
1930 Denvil, H. G., F.Z.S., F.R.H.S., 4, Warwick Road, Coulsdon, Surrey. *l, c.*
1947 Dewick, A. J., Curry Farm, Bradwell-on-Sea, Southminster, Essex. *l.*
1958 Dillon, T. J., 4, Alleyn Crescent, West Dulwich, London, S.E.21. *l.*

1945 Dixon, C. H., Northbrook Farm, Micheldever, Hants. *ent.*
1921 Dolton, H. L., 36, Chester Street, Oxford Road, Reading, Berks. *l.*
1930 Dudbridge, B. J., B.A., c/o The Secretariat, Dar-es-Salaam, Tanganyika. *ent.*
1949 Duffield, C. A. W., M.C., J.P., F.R.E.S., Pickersdane, Brook, near Ashford, Kent. *l, c, hem, homoptera.*
1946 Dunbar, J. G., Royal Commission, Ancient and Historic Monuments (Scotland), 7, Coates Gardens, Edinburgh 1. *l.*
1950 Dunk, H. C., 24, Abbots View, Abbots Rise, Kings Langley, Herts. *l.*
1956 Dunn, T. C., B.SC., D.T., P.T., The Poplars, Chester-le-Street, Co. Durham. *l, esp. ml.*
1952 Dyson, R. C., N.D.H., F.R.E.S., 112, Hollingbury Park Avenue, Brighton 6, Sussex. *l.*

1927 Eagles, T. R., *Hon. Librarian*, 32, Abbey Road, Enfield, Middlesex. *l, c.*
1937 Easton, N. T., D.F.H., Westbury, West End Road, Mortimer, Berks. *l, g, nat. phot.*
1949 Edwards, F. H., Rockfield, Abbey Road, Worthing, Sussex. *l.*
1945 Edwards, G. Graveley, Talbot Croft, St Albans, Herts. *l.*
1945 Edwards, R. C., Arlesley, Pilgrims' Way, Westerham, Kent. *ent.*
1933 Elgood, W. S., M.A., North Brink, Wisbech, Cambs. *l.*
1951 Ellison, Eldon F. D., Youl Grange, Link Road, Eastbourne, and Clifton College, Bristol. *l.*
1945 Ellison, R. Eldon, F.R.E.S., *Council*, Youl Grange, Link Road, Eastbourne. *l.*
1937 Embry, B., F.R.E.S., Brocks Ghyll, Newick, Sussex. *l.*
1932 Ennis, L. H., F.C.A., Southery, Milbourne Lane, Esher, Surrey. *l.*
1947 Evans, Miss E., c/o Royal Entomological Society of London, 41, Queen's Gate, London, S.W.7.
1945 Evans, L. J., 73, Warren Hill Road, Birmingham 23. *l.*

1946 Fairclough, R., "Blencathra," Deanoak Lane, Leigh, Surrey. *ent.*
1947 Farwell, I. G., F.R.E.S., "Mayfield Villa", Portmore, Lymington, Hants. *l.*
1955 Fearnehough, T. D., A.MET., 13, Salisbury Road, Dronfield, Nr. Sheffield. *l.*
1947 Feilden, G. St. Clair, B.M./N.L.B.G., London, W.C.1. *ent.*
1946 Ferguson, L. F., L.D.S., R.C.S., "Harley House," Gloucester Road, Teddington, Middlesex. *c.*
1930 Ferrier, W. J., F.R.E.S., 86, Portnalls Road, Coulsdon, Surrey. *l.*
1940 ffennell, D. W. H., Martyr Worthy Place, Winchester, Hants. *l.*
1955 Firmin, Joseph, 12, Worthington Way, Lexden, Colchester, Essex. *l.*

1943 Ford, E. B., M.A., D.SC., F.R.S., F.R.E.S., The University Museum, Oxford. *ent, g.*

1920 Ford, L. T., B.A., 28, Park Hill Road, Bexley, Kent. *l.*

1939 Forster, H. W., 32, Park Mead, Harlow, Essex.

1915 Foster, T. B., "Downlands", 24, York Road, Selsdon, Surrey. *l.*

1948 Fraser, Lt.-Col. F. C., I.M.S.RETD., M.D., M.R.C.S., L.R.C.P., F.R.E.S., 55, Glenferness Avenue, Winton, Bournemouth, Hants. *od, n.*

1952 Fraser, R. A., c/o P. A. Fraser, Blairbeth, Amatikulu, Zululand, S. Africa. *l, c.*

1948 Frazer, J. F. D., M.A., D.M., PH.D., F.Z.S., F.R.E.S., Stone House, Harbourland, Boxley, Maidstone, Kent. *rh, r.*

1946 Friedlein, A. F. E., "St. Andrews", 85, Priests Lane, Shenfield, Brentwood, Essex. *l.*

1951 Frohawk, Mrs. M. J., Essendene, Cavendish Road, Sutton, Surrey. *ent, nat. hist.*

1947 Gardner, A. E., F.R.E.S., *Hon. Curator*, 29, Glenfield Road, Banstead, Surrey. *od, l.*

1952 Garland, W. A., 1, Testard Road, Guildford, Surrey. *rh.*

1954 Gerard, B. McC., 68, Fern Lane, Heston, Hounslow, Middx. *ent.*

1950 Gent, P. J., 3, Irthlingborough Road, Wellingborough, Northants. *l.*

1952 Gillman, Lt.-Col. H. C. R., M.B.E., R.A., Noads House, Tilshead, Wilts. *ent.*

1950 Goater, B., B.SC., F.R.E.S., *Hon. Secretary*, 71, Grant's Close, Mill Hill East, N.W.7. *l, orn, b.*

1936 Goodban, B. S., 99, Lime Grove, Eastcote, Ruislip, Middx. *l.*

1957 Goodden, R. C., 42, Salisbury Road, Bexley, Kent. *l.*

1935 Goodliffe, F. D., M.A., Lord Wandsworth College, Long Sutton, Basingstoke, Hants. *ec. ent, d* (*Chloropidae*), *c* (*Dytiscidae*).

1942 Goodson, A. L., 26, Park Road, Tring, Herts. *l.*

1955 Gooseman, M. P., F.R.E.S., "Lonicera", Bottesford Road, Bottesford, Scunthorpe, Lincs. *l, c.*

1926 Gordon, D. J., C.B., B.A., F.R.E.S., Table Office, House of Commons, London, S.W.1. *c, l.* (*Life Member*).

1949 Gould, A. W., 30, Shooters Hill Road, Blackheath, S.E.3. *c.*

1936 Gowing-Scopes, E., F.R.E.S., "Oakhurst", Oakwood Road, Crofton, Orpington, Kent. *c.*

1958 Greenwood, J. A. C., O.B.E., F.R.E.S., Woodcote, Horsell Park, Woking, Surrey. *l.*

1950 Greenwood, K. C., M.B., CH.B., "Rydal," 1, Conyers Avenue, Birkdale, Southport, Lancs. *l, ml.*

1953 Griffiths, G. C. D., F.R.E.S., 13, Woodlands Avenue, Finchley, London, N.3. *d* (*Agromyzidae*)

1957 Groves, E. W., 143, Carshalton Park Road, Carshalton, Surrey. *hem, d, hym. ec.*

1950 Gully, J. G., Howells Bank Farm, Ringmer, Sussex. *l*

1955 Gurdon, J. B., Furnell House, Frensham, Surrey. *l.*

1947 Haggett, G. M., F.R.E.S., 1, Torton Hill, Arundel, Sussex. *l, ent.*

1953 Hall, D. G., 34, Ellerton Road, Wandsworth Common, London, S.W.18. *c.*

1949 Hall, Stewart Scott, C.B., M.SC., F.R.AE.S., 26, Ordnance Hill, London, N.W.8.

1955 Halstead, D. G. H., 1, Barry Avenue, Windsor, Berks. *c.*

1944 Hammond, H. E., F.R.E.S., 16, Elton Grove, Birmingham 27 *l, ent.*

1949 Hanson, S. M., F.R.E.S., 167, Gunnersbury Park, Ealing, London, W.5. *l.* (*Life Member*).

1948 Harbottle, The Rev. A. H. H., M.A., 6, Ranelagh Grove, St. Peters, Broadstairs, Kent. *l.*

1943 Hards, C. H., F.R.E.S., 40, Riverdale Road, Plumstead, London, S.E.18. *l.*

1956 Hardy, D. E., District Bank House, Heswall, Wirral, Cheshire. *l.*

1943 Harper, Comdr. G. W., R.N., F.R.E.S., Neadaich, Newtonmore, Inverness-shire, Scotland. *l.*

1954 Harper, M. W., Neadaich, Newtonmore, Inverness-shire, Scotland. *l, ent.*

1936 Harris, W. H. A., " Kemel," Oak Tree Close, Stanmore, Middlesex. *l.*

1951 Harrison-Gray, M., 16, Carlton House Terrace, London, S.W.1. *Saturniidae.*

1953 Harvey, Cpl. J. G. (Staff), R.A.F. Hospital, Ely, Cambs. *c.*

1927 Hawgood, D. A., 2, Kingsmead Road, Tulse Hill, London, S.W.2. *l.*

1924 Hawkins, C. N., F.R.E.S., 23, Wilton Crescent, Wimbledon, London, S.W.19. *l, c, g.*

1938 Haynes, R. F., *Recorder*, 29, Fairfield Drive, Dorking, Surrey. *l.*

1923 Hayward, Capt. K. J., F.R.E.S., F.Z.S., F.R.G.S., Instituto Miguel Lillo, Calle Miguel Lillo, 205, Tucuman, Republica Argentina. *l, orn, c.*

1954 Heath, John, F.R.E.S., c/o The Nature Conservancy, Merlewood Research Station, Grange-over-Sands, Lancs. *ml.*

1920 Hemming, A. Francis, C.M.G., C.B.E., F.Z.S., F.R.E.S., 28, Park Village East, Regents Park, London, N.W.1. *l.*

1924 Henderson, J. L., *Hon. Treasurer*, 6, Haydn Avenue, Purley, Surrey. *c.*

1951 Herbulot, C., 31, Av. d'Eylau, Paris 16e, France. *l.*

1954 Hervey, The Rev. Canon G. A. K., M.A.(OXON.), Great Salkeld Rectory, Penrith, Cumberland. *ent, orn, b.*

1945 Heslop, Mrs E. A., " Belfield," Poplar Road, Burnham-on-Sea, Somerset. *l. nat. hist.*

1931 Heslop, I. R. P., M.A., F.R.E.S., "Belfield", Poplar Road, Burnham-on-Sea, Somerset. *l, nat. hist.*
1946 Hewson, F., F.R.E.S., 23, Thornhill Drive, Gaisby, Shipley, Yorks. *l, hym. parasitica.*
1948 Hickin, N. E., PH.D., B.SC., F.R.E.S., *President*, Home Farm, Fetcham, Surrey. *t.*
1956 Higgins, W. J., Standard Nursery, Old Worthing Road, East Preston, Sussex. *l.*
1948 Hillaby, J. D., F.Z.S., F.R.E.S., 85, Cholmley Gardens, London, N.W.6. *ent.*
1945 Hinton, H. E., PH.D., B.SC., F.R.E.S., Department of Zoology, Bristol University, Bristol, Glos.
1949 Hoare-Ward, J. W., Box's Farm, Horsted Keynes, Sussex. *l.*
1953 Hodgkinson, Alexander, A.R.C.A., 12, Kitson Road, Barnes, London, S.W.13. *l.*
1956 Homer, T. J. G., M.A., A.M.INST.T., Yelton Hotel, Hastings, Sussex. *t.*
1950 Honeybourne, T. J., F.R.E.S., "Laceys," 97, Birchwood Road, Wilmington, Dartford, Kent. *l.*
1955 Hornabrook, R. W., CH.B., M.R.A.C.P., Nuffield Foundation House, 34, Leinster Gardens, London, W.2. *c.*
1945 Howard, A. P., 65 Hale Lane, London, N.W.7. *ent.*
1927 Howard, J. O. T., M.A., Wycherley, Deepdene Wood, Dorking, Surrey. *l.*
1953 Howarth, Mrs. Helen, "Arrochar", Barnet Gate, Arkley, Herts. *l, b.*
1931 Howarth, T. G., B.E.M., F.R.E.S., F.Z.S., "Arrochar", Barnet Gate, Arkley, Herts. *l.*
1934 Huggins, H. C., F.R.E.S., 65, Eastwood Boulevarde, Westcliff-on-Sea, Essex. *l, ent.*
1947 Humphrey, S. W., Pear Tree House, Roade, Northamptonshire. *l, rh.* (*Life Member.*)
1957 Hurworth, P., 10, Linden Grove, Rumney, Cardiff. *rh. c.*
1933 Hutchings, H. R., 127, Chadacre Road, Stoneleigh, Surrey. *l.*
1950 Hyde, G. E., F.R.E.S., "Pantiles", Warnington Drive, Bessacarr, Doncaster, Yorks. *l, od.*
1953 Hyde, R. A., "Woodside," Reading Road, Finchampstead, Berks. *c.*
1950 Hyde-Wyatt, B., 108, Lindsay Road, Worcester Park, Surrey. *od, c, l.*

1956 Imber, S. F., 241, Mayall Road, Herne Hill, London, S.E.24. *rh.*
1953 Ives, Major D. H., R.A., 2nd Bn., The Gold Coast Regt., R.W.A.F.F., Accra, Ghana, W. Africa. *l.*

1956 Jackson, Miss D. J., North Cliff, St. Andrews, Fife. *c, hym. par.*
1940 Jackson, Capt. Reginald A., C.B.E., R.N., F.R.E.S., Middle Farm House, Codford St. Mary, Warminster, Wilts. *ent, l.*

1923 **Jacobs**, S. N. A., S.B.ST.J., F.R.E.S., *Trustee*, "Ditchling", 54, Hayes Lane, Bromley, Kent. *ml*, *eml*.

1955 **Jacoby**, M. C., 22, Birdhurst Road, South Croydon, Surrey. *ent*.

1956 **James**, B. C., 31, Mainwaring Road, Lincoln. *l*.

1948 **Janson**, D. B., 44, Great Russell Street, London, W.C.1. *ent*. (*Life Member*).

1925 **Jarvis**, C. MacKechnie, F.L.S., Sussex House, Parkside, Wimbledon. *c*.

1938 **Jarvis**, F. V. L., B.SC., F.R.E.S., "Corbière", 33, Greencourt Drive, Bognor Regis, Sussex. *l*, *g*.

1947 **Jay**, E. P., Surrey Cottage, Littlehampton, Sussex. *l*.

1951 **Jefferson**, T. W., 37, Riversdale Terrace, Sunderland, Co. Durham. *l*.

1948 **Jeffs**, G. A. T., Nunsholme, Nuns Corner, Grimsby, Lincs. *l*, *ent*.

1958 **Jenner**, D., 2, Kiln Barn Road, Ditton Court Farm, Ditton, nr. Maidstone, Kent. *ent*.

1957 **Johnson**, Major F. L., M.B.E., T.D., F.R.E.S., 25, Fermoy Road, Thorpe Bay, Essex. *rh*.

1945 **Johnson**, Major-General Sir George F., K.C.V.O., C.B., C.B.E., D.S.O., Castlesteads, Brampton, Cumberland. *l*, *orn*.

1952 **Jopson**, F. L., Langdale, Higherford, Nelson, Lancs. *l*.

1956 **Keith-Johnston**, Colin, 350, Finchley Road, London, N.W.3. *l*.

1946 **Kemp**, J. K. C., 12, Nab Wood Crescent, Shipley, Nr. Bradford, Yorks. *l*.

1956 **Kennard**, H. A., Torns, Ashburton, Devon. *l*, *ml*.

1943 **Kershaw**, Col. S. H., D.S.O., Alderman's Place, Aspley Heath, Bletchley, Bucks. *l*.

1928 **Kettlewell**, H. B. D., M.A., M.B., B.CHIR., M.R.C.S., L.R.C.P., F.R.E.S., Dept. of Zoology, University Museum, Oxford. *g*, *l*.

1952 **Kindred**, A. D., 27, Richmond Avenue, Bedfont, Middlesex. *l*.

1947 **Klimesch**, J., Donatusgasse 4, Linz-a-Donau, Austria. *ml*.

1944 **Kloet**, G. S., F.Z.S., F.R.E.S., 14, Hawthorne Lane, Wilmslow, Cheshire. *ent*.

1955 **Klots**, Prof. Alexander B., B.S., M.S., PH.D., 215, Young Avenue, Pelham, New York, U.S.A. *l*, *Systematics*, *Ecology*

1952 **Knight**, F., 90, Mitford Road, Holloway, London, N.19. *l*.

1951 **Lane**, A. W., 178, Ravenscroft Road, Beckenham, Kent. *c*.

1947 **Lanfear**, A. H., "Highclere," 20, South Eastern Road, Ramsgate. Kent. *l*.

1945 **Lang**, R. M., A.C.A., 85, Cheam Road, E. Ewell, Surrey. *l*.

1951 **Langmaid**, J. R., B.A., M.B., B.CHIR., 9, Craneswater Park, Southsea, Portsmouth, Hants. *l*.

1956 **Langton**, P. H., 17, Warnham Road, Horsham, Sussex. *c*, *l*.

1941 **Last**, H. R., F.R.E.S., 12, Winkworth Road, Banstead, Surrey. *c*, *l*.

1946 LATHAM, F. H., F.R.E.S., "The Elms," Mapleborough Green, Redditch, Worcs. *l.*

1927 LAWSON, H. B., "Churchmead," Pirbright, Surrey. *l.*

1957 LAWSON, P. H., B.A., "The Mount", Chobham, nr. Woking, Surrey. *l.*

1952 LEECH, M. J., "The Spinney," Freshfield Road, Formby, Nr. Liverpool. *l, c.*

1952 LEES, F. H., F.R.E.S., "The Gables," Maidencombe, Torquay. *l.*

1948 LESTON, D., F.Z.S., F.R.E.S., *Council*, 44, Abbey Road, London, N.W.8. *hem.* *(Life Member.)*

1947 LEWIS, E., F.R.E.S., 8, Parry Road, South Norwood, London, S.E.25. *c.*

1934 LINE, H. V., 11, Priory Avenue, Petts Wood, Orpington, Kent.

1951 LING, R. B., The Severells, Rectory Lane, Sidcup, Kent. *l.*

1933 LIPSCOMB, Brigadier C. G., H.Q., Hanover Dist., Hanover, B.A.O.R. 8. *l.*

1937 LISNEY, A. A., M.A., M.B., F.R.E.S., "Dune Gate," Clarence Road, Dorchester, Dorset. *l.*

1948 LLEWELYN, Mrs. J. R., B.SC. (HORT.), F.R.E.S., 38, Fernleigh Rise, Ditton, Maidstone, Kent. *ent.*

1948 LOCKINGTON, N. A., M.A., A.R.I.C., 19, Spring Grove, Loughton, Essex. *ent.*

1948 LORIMER, R. I., 8, Southway, Totteridge, N.20. *l.*

1950 LOVELL, R., 27, Athenaeum Road, Whetstone, London, N.20. *l.*

1957 LYDGATE-BELL, H. G., 32, Hastings Way, Croxley Green, Herts. *l, orn.*

1954 LYON, F. H., M.B.E., F.R.E.S., Green Headland, Sampford Peverell, Tiverton, Devon. *l.*

1953 MCCLURE, A. M., Bowyers Court, Wisborough Green, Sussex. *l.*

1952 MCCRAE, A. W. R., Oak Lawn, Gordon Avenue, Stanmore, Middlesex. *l.*

1950 MCDERMOTT, Miss C. A., "The Dene," Borough Green, Kent. *rh.*

1952 MACKWORTH-PRAED, C. W., F.R.E.S., Castletop, Burley, Hants. *ent.*

1949 MACNICOL, D. A. B., M.B., CH.B., 52, St Albans Road, Edinburgh 9. *l. ml.*

1931 MACNULTY, B. J., PH.D., B.SC., F.R.I.C., Ministry of Supply Tropical Testing Establishment, Port Harcourt, Nigeria. *l.*

1956 MAITLAND-SMITH, Lt. GERALD, 2/10 P.M.O., Gurkha Rifles, Falis, Claremont Road, Claygate, Surrey. *l.*

1949 MANLEY, G. E. L., Chalvington House, Nr. Hailsham, Sussex. *l.*

1945 MANLEY, Lt.-Col. W. B. L., F.R.E.S., *Council*, Greenways, Shoreham Rd., Otford, Kent. *ent.*

1956 MANLEY, Mrs. W. B. L., Greenways, Shoreham Road, Otford, Kent. *l.*

1956 MANSELL, G. H., 20, Norfolk Mansions, London, S.W.11. *l.*

1932 MARCON, Rev. J. N., Texwood Vicarage, Billingshurst, Sussex. *l.*

1930 Marsh, Capt. Dudley G., "White Gates", Wingham Rd., Littlebourne, Nr. Canterbury, Kent. *l.*

1956 Marsh, Capt. J. C. S., c/o Lloyds Bank Ltd., Cox's & King's Branch, 6, Pall Mall, S.W.1. *l.*

1950 Martin, E. L., 40, Princes Road, London, S.W.19. *l, t.*

1922 Massee, A. M., O.B.E., D.SC., F.R.E.S., East Malling Research Station, Kent. *hem, c, acarina.*

1955 Matthews, D. P. L., T.D., Flat 5, 51, Cadogan Place, London, S.W.1. *l.*

1947 Maxwell, Sir Reginald M., M.A., G.C.I.E., K.C.S.I., Barford House, St Mary Bourne, Andover, Hants. *ent.*

1951 May, J. T., Homeland, Beech, Alton, Hants. *l.*

1946 Mellows, Charles, Alliott House, The College, Bishop's Stortford, Herts. *l, hym.*

1952 Menzies, I. S., "Eden Roc", Florida Road, Ferring-by-Sea, Sussex. *c, l, orth.*

1946 Mere, R. M., F.R.E.S., *Council*, Mill House, Chiddingfold, Surrey. *l.*

1951 Messenger, J., L., B.A., "Oakhill", Oatlands Drive, Weybridge, Surrey. *l.*

1951 Michaelis, H. N., 10, Didsbury Park, Didsbury, Manchester 20. *l.*

1945 Michaud, J., PH.D., 22, Routh Road, London, S.W.18. *ent.*

1938 Minnion, W. E., 40, Cannonbury Avenue, Pinner, Middlesex. *l.*

1952 Montgomery, Major J. R. P., M.C., 17 Parachute Bn. (9D.L.I.) T.A., Burt Terrace Drill Hall, Gateshead, Co. Durham. *l.*

1957 Moon, H. N., 319, Coniscliffe Road, Darlington. *rh.*

1946 Moore, B. P., B.SC., PH.D., F.R.E.S., *Vice-President*, C.S.I.R.O. Divn. of Industrial Chemistry, P.O. Box 4331, G.P.O., Melbourne, Victoria, Australia. *od, c.*

1947 Moore, D. R., Manor Cottage, Blackthorne, nr. Bicester, Oxon. *l.* (*Life Member.*)

1947 Moppett, A. A., B.A., 39, Fairdale Gardens, Hayes, Middlesex. *ent.*

1951 More, D., The Little House, Hockley Road, Rayleigh, Essex. *ent.*

1949 Morgan, H. D., F.R.E.S., 3, Ten Acre Wood, Margam, Port Talbot, Glam. *ent.*

1920 Morison, G. D., B.SC., PH.D., F.R.E.S., Dept. Advisory Entomology, N. of Scotland Agricultural College, Marischal College, Aberdeen, Scotland. *ec. ent.*

1930 Morley, A. M., O.B.E., M.A., F.R.E.S., 9, Radnor Park West, Folkestone, Kent. *l.*

1953 Morris, M. G., F.R.E.S., " Old Timbers," 57, St. Mary's Avenue, Shortlands, Kent. *l.*

1945 Murray, Rev. D. P., F.R.E.S., The Lodge, Stoke Golding, Nr. Nuneaton, Leics. *l.*

1957 Murray, E. G., 22, Evelyn St., Deptford, London, S.E.8. *l.*

1949 Newman, D. E., 4, Andrew Road, Wallingford, Berks. *l.*
1926 Newman, L. Hugh, F.R.E.S., Chestnut House, Cold Blow, Bexley, Kent. *l.*
1950 Newton, J., B.SC., 11, Oxlease Close, Tetbury, Glos. *l.*
1945 Newton, J. L., M.R.C.S., L.R.C.P., F.R.E.S., 8, Stainburn Crescent, Leeds 17. *l, b.*
1930 Niblett, M., F.R.E.S., 10, Greenway, Wallington, Surrey. *galls.*
1953 Nissen, C. L., F.R.E.S., Flat 10, 250, South Norwood Hill, London, S.E.25. *l.*
1955 Noble, F. A., 2, Newton Road, Sparkhill, Birmingham, 11. *l.*

1938 Odd, D. A., F.Z.S., F.R.E.S., "Herons Ghyll", Stall House Lane, North Heath, Pulborough, Sussex. *l.*
1932 O'Farrell, A. F., B.SC., A.R.C.S., F.R.E.S., New England University, Armidale, N.S.W., Australia. *od, cr, ent.*
1934 Oliver, G. B., "Corydon", Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*
1943 Oliver, G. H. B., "Corydon", Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*
1952 Olsen, E. T., Hersegade 5, Roskilde, Denmark. *ml.*
1945 Owen, Godfrey V., Orford, 63, Manor Park Road, West Wickham, Kent. *l.*

1958 Painter, H. L., "Forsters", West Malling, Kent. *l.*
1942 Parfitt, R. W., "Penpethy", Manor Rd., Farnborough, Hants. *l.*
1946 Parmenter, L., F.R.E.S., 94, Fairlands Avenue, Thornton Heath, Surrey. *d.* (*Life Member.*)
1949 Parsons, R. E. R., F.R.E.S., I.P., Woodlands Lodge, Woodlands Close, Ottershaw, Surrey. *l.*
1950 Payne, J. H., 10, Ranelagh Road, Wellingborough, Northants. *rh, breeding.*
1940 Payne, R. M., 8, Hill Top, Loughton, Essex. *c, od, orth, b.* (*Life Member.*)
1953 Peacey, A. F., Hillside, Brimscombe, Stroud, Glos. *ml.*
1957 Pearce, C. J., 2, Head Street, Rowhedge, Colchester, Essex. *ent.*
1955 Pearson, A. J. R., Dower Cottage, Feering, Colchester, Essex. *rh.*
1940 Pelham-Clinton, Edward C., F.R.E.S., 34, Craigmillar Park, Edinburgh, 9. *l.*
1928 Perkins, J. F., B.SC., F.R.E.S., 95, Hare Lane, Claygate, Surrey. *hym.*
1944 Perry, K. M. P., 15, Roundwood Way, Banstead, Surrey. *c.*
1950 Peters, Wallace, M.B., B.S., M.R.C.S., L.R.C.P., F.R.E.S., 175, Lauderdale Mansions, London, W.9. *ent, l.*
1946 Phelps, C. C., M.B.E., 4, Queensberry House, Friars Lane, Richmond, Surrey. *l.*

1945 Philpott, V. W., F.R.E.S., Rose Cottage, Watergate Lane, Broadmayne, Dorset. *l.*

1958 Phillips, Miss A., 56, Park Avenue, Maidstone, Kent. *c.*

1933 Pinniger, E. B., F.R.E.S., "Littlecote", 19, Endlebury Road, Chingford, London, E.4. *od, n, l.*

1949 Platts, J. H., Green Shutters, Manthorpe Road, Grantham, Lincs. *l.*

1947 Polacek, V. B., Brandys-nad-Labem, c.p. 601, 1 patro, Komenskeho-ulice, Czeckoslovakia. *b, ent, orn.*

1933 Pooles, S. W. P., 154, Thorpe Road, Peterborough, Northants. *l.*

1949 Popham, W. J., 89, Frederick Place, Plumstead, London, S.E.18. *l.*

1955 Potter, N. B., The Mill House, North Warnborough, Hants. *l.*

1950 Price, G. C., "Alpha," 67, Cornyx Lane, Solihull, Warwickshire. *l.*

1948 Prichard, R., "Lincona," Woodcroft Lane, Bebington, Cheshire. *l, ml.*

1948 Prideaux, A. G., B.A., Union Club, Carlton House Terrace, London, S.W.1. *ent (rh), orn.*

1957 Pring, M., Dorset House, Bryanston School, Blandford, Dorset. *l.*

1945 Purefoy, J. Bagwell, c/o Upper Tilt Works, Cobham, Surrey. *l.*

1922 Rait-Smith, W., F.Z.S., F.R.E.S., F.R.H.S., *Trustee*, "Hurstleigh", Park Road, Redhill, Surrey. *l.*

1946 Ransome, Major-General A. L., C.B., D.S.O., M.C., The Close, Braishfield, Romsey, Hants. *rh.*

1955 Raven, Rev. Canon C. E., D.D., D.SC., F.B.A., F.L.S., 10, Madingley Road, Cambridge. *l.*

1953 Rawlings, C. J., 5, Berther Road, Emerson Park, Hornchurch, Essex. *l.*

1946 Ray, H., Mill House Cottage, Bishopstoke, Hants. *rh.*

1955 Redgrave, A. C. R., 17, Woods Orchard Road, Tuffley, Gloucester. *l.*

1952 Reid, J. F., 19, High Street, Leighton Buzzard, Beds. *l.*

1950 Reid, W., A.M.I.C.E., 6, Whirlow Park Road, Sheffield 11, Yorks. *ent.*

1952 Richards, A. W., M.A., B.SC., "Oriel", Court Moor Avenue, Fleet, Hants. *od, orth, l, ml, Pyralidae.*

1945 Richards, Prof. O. W., M.A., D.SC., F.R.E.S., Department of Zoology, Imperial College of Science and Technology, South Kensington, London, S.W.7. *ent.*

1957 Richards, R. F., 25, Bishops Road, Fulham, S.W.6. *l.*

1948 Richardson, A. E., 391, Malden Road, Worcester Park, Surrey. *l.*

1942 Richardson, Austin, M.A., F.R.E.S., Beaudesert Park, Minchinhampton, Glos. *l.*

1936 Richardson, N. A., 11, Windsor Street, Bletchley, Bucks. *l.*

1908 Riley, Capt. N. D., C.B.E., F.R.E.S., F.Z.S., 7, McKay Road, Wimbledon, London, S.W.20. *l.*

1953 Riordan, B. D., 75, Blenheim Road, North Harrow, Middlesex. c.

1953 Rivers, C. F., f.r.e.s., 98, Windsor Road, Cambridge. *l* (*virus diseases of insects*).

1910 Robertson, G. S., m.d., "Struan", Storrington, near Pulborough, Sussex. *l.*

1949 Robinson, H. S., f.r.e.s., c/o Employees' Provident Fund, Brickfields Road, Kuala Lumpur, Malaya. *l.*

1954 Robinson, P. J. M., b.sc., a.m.i.c.e., c/o John Mowlem & Co., P.O. Box 1578, Teheran, Iran. *l.*

1951 Robson, J. P., 10, Vane Road, Barnard Castle, Co. Durham. *l.*

1953 Roche, C. G., a.c.a., 80, Princes Gate Mews, London, S.W.7. *hym.*

1942 Roche, P. J. L., m.r.c.s., l.r.c.p., f.r.e.s., 511 Cowbridge Road East, Cardiff. *c, hem, e.l.*

1953 Rose, Ian C., "Shrublands", Mistley, Essex. *ent.*

1932 Rudland, W. Lewis, f.r.e.s., 452, Hythe Road, Ashford, Kent. *l.*

1947 Rumsey, F., 46, Warren Road, Banstead, Surrey. *l.*

1949 Runge, C., 11, St. Andrews Road, Caversham, Reading, Berks. *l, hym.*

1952 Russwurm, A. D. A., f.r.e.s., 1, Langley Oaks Avenue, Sanderstead, Surrey. *l.*

1946 Saundby, Air-Marshal Sir Robert H. M. S., k.c.b., k.b.e., c.b., m.c., d.f.c., a.f.c., f.r.e.s., Oxleas, Burghclere, near Newbury, Berks. *l.*

1947 Saunders, J. M. K., 22, Francis Road, Pinner, Middlesex. *l* (*especially rh*).

1945 Saunt, J. W., a.l.s., "Riverview," Minerva Road, East Cowes, I.O.W. *hym, ent.*

1956 Schofield, Wing Comdr. C. H., Headley Hill, Bordon, Hants. *l, b.*

1927 Scott, Col. E., d.s.o., m.d., s.b.st.j., "Suomi," Westwell, Ashford, Kent. *l.*

1948 Sculthorp, A. H., 46, Pick Hill, Waltham Abbey, Essex. *c.*

1946 Self, K. W., 53b, Earls Avenue, Folkestone, Kent. *ent.*

1923 Sevastopulo, D. G., f.r.e.s., c/o Ralli Bros., Ltd., P/O Box 881, Mombasa, Kenya. *l.* (*Life Member*).

1951 Shaw, R. G., 5, Barnham Road, Chingford, London, E.4. *l, hem.*

1947 Short, H. G., m.sc., "Leaholme", 8, Milbourne Lane, Esher, Surrey. *l.*

1954 Showler, A. J., m.sc., 19, Harval Crescent, Abbey Wood, London, S.E.2. *l.*

1948 Siggs, L. W., 10, Repton Road, Orpington, Kent. *l.*

1939 Siviter Smith, P., f.r.e.s., 21, Melville Hall, Holly Road, Edgbaston, Birmingham, 16. *l.*

1957 Skinner, B. F., 85, Elder Road, W. Norwood, S.E.27. *l.*

1948 Small, H. M., Armeria, Waterloo Lane, Skellingthorpe, Lincs. *l, od.*

1953 Smith, D. S., F.R.E.S., The Daffodils, Doyle Road, St. Peter Port, Guernsey, C.I. *l.*

1956 Smith, F. G., Shenstone Lodge, Cokes Lane, Chalfont St. Giles, Bucks. *l.*

1941 Smith, Lieut. Fdk. Wm., R.N.V.R., South Fawley Cottage, Wantage, Berks. *l, hym. (Life Member).*

1920 Smith, S. Gordon, F.L.S., F.R.E.S., "Estyn", Boughton, Chester. *ent.*

1946 Southwood, T. R. E., B.SC., PH.D., A.R.C.S., M.I.BIOL., F.R.E.S., Imperial College Field Station, Silwood Park, Sunninghill, Nr. Ascot, Berks. *ent, hem, c, ecology.*

1949 Spencer, K. A., B.A., F.R.E.S., 19, Redington Road, London, N.W.3. *l, d.*

1947 Sperring, A. H., *Council*, Slindon, Fifth Avenue, Warblington, Hants. *l.*

1950 Spittles, C. E., 95, Tring Road, Aylesbury, Bucks. *l.*

1956 Spoczynska, Mrs. J. O. I., 89, Harlestone Road, St. James', Northampton. *l.*

1943 Spreadbury, W. H., *Council*, 35, Acacia Grove, New Malden, Surrey. *nat. hist.*

1953 Stallwood, B. R., 19, Southfield Gardens, Strawberry Hill, Twickenham, Middlesex. *l.*

1949 Stanley, F. C., F.R.E.S., "Swanmore", Bowes Hill, Rowlands Castle, Hants. *l, c.*

1927 Stanley-Smith, F., "Hatch House", Pilgrims Hatch, Brentwood, Essex. *l.*

1937 Stedall, H. P. P., Chiltern Manor, Great Missenden, Bucks. *ent.*

1958 Stewart, R. H. A., B.A., Downs House Flat, Highfield, Lymington, Hants. *l.*

1942 Stidston, Eng. Capt. S. T., R.N., F.R.E.S., "Ashe", Ashburton, Devon. *l.*

1955 Stockley, R. E., 18 Leighton Gardens, Sanderstead, Surrey. *l.*

1956 Stoner, A. J., 12, Eshton Road, Eastbourne, Sussex. *l.*

1952 Storace, Luciano, Museo Storia Naturale, Via Brigata Liguria, 9, Genoa, Italy. *l.*

1924 Storey, W. H., Fairstead, Long Road, Cambridge. *ent.*

1945 Stoughton-Harris, G., M.A., F.C.A., F.R.E.S., "Rosegarth", Waldens Road, Horsell, Woking, Surrey. *ent.*

1948 Struthers, F. M., 143a, Gander Green Lane, Cheam, Surrey. *l.*

1929 Stubbs, G. C., Egremont House, Ely, Cambs., and Survey Office, Kuala Lumpur, Malaya.

1939 Summers, E. J., 45, Mulgrave Road, Sutton, Surrey. *c, hem.*

1934 Sutton, Gresham R., 6, Kenilworth Gardens, Loughton, Essex. *l, c.*

1950 Swain, H. D., M.A., F.R.E.S., 47, Dryburgh Road, Putney, S.W.15. *l, hy, c, hem.*

1950 Symes, H., M.A. (OXON), 52, Lowther Road, Bournemouth, Hants. *l.*

1916 Syms, E. E., F.R.E.S., F.Z.S., 22, Woodlands Avenue, Wanstead, London, E.11. *n*, *orth*, *od*, *t*.

1942 Talbot de Malahide, The Lord, C.M.G., Malahide Castle, Dublin, Ireland. *l*.
1922 Tams, W. H. T., F.R.E.S., 20, Ranelagh Avenue, Fulham, London, S.W.6. *ent*.
1950 Taylor, A. S., 364, Burley Road, Leeds 4. *l*.
1941 Taylor, H. G., 11, Old Forge Way, Sidcup, Kent. *l*.
1949 Temple, Miss Vere, F.R.E.S., King's Chase, Tollard Royal, Salisbury, Wilts. *l*, *hym*, *orth*, *od*.
1952 Thorn, Miss B. A., "Paviott", 16, Springfields, Broxbourne, Herts. *l*.
1952 Thornton, J., 43, Barnes Street, Clayton-le-Moors, Accrington, Lancs. *l*.
1950 Thorpe-Young, D. W., A.I.A.C., F.Z.S., 11, Waverley Way, Carshalton Beeches, Surrey. *ent*.
1956 Tidmarsh, A. C. B., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l*.
1956 Tidmarsh, J. S. C., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l*.
1945 Timms, C., F.R.E.S., 524a, Moseley Road, Birmingham 12. *d*.
1953 Torlesse, Rear Admiral A. D., C.B., D.S.O., Trentham, Burton Joyce, Notts. *l*.
1948 Torstenius, Stig, Celsiusgatan 7, Stockholm K, Sweden. *l*.
1950 Trought, Trevor, M.A., F.R.E.S., Brookland, Tysoe, Warwickshire. *l*.
1948 Trundell, E. E. J., "Camilla", Bowesden Lane, Shorne, Ridgway, Gravesend, Kent. *ent*, *l*.
1948 Tubbs, Mrs M., 9, Lingfield Road, Wimbledon Common, S.W.19. *rh*.
1947 Tubbs, R. S., O.B.E., F.R.I.B.A., *Council*, 9, Lingfield Road, Wimbledon Common, S.W.19. *rh*.
1934 Tunstall, H. G., 11 St. James Avenue, Ewell, Surrey. *l*.
1940 Turner, A. D., 19, Manor Close, Kingsbury, London, N.W.9. *ent*.
1948 Turner, A. H., F.Z.S., F.R.E.S., F.R.MET.S., Forest Drove, Bickenhall, Hatch Beauchamp, Taunton, Somerset. *ent*, *insect migration*, *conchology*. (*Life Member*.)
1944 Turner, H. J., 4, Browning Avenue, Boscombe, Nr. Bournemouth, Hants. *l*.
1953 Tweedie, M. W. F., M.A., C.M.Z.S., Houghton House, Rye, Sussex. *l*.

1952 Uffen, R. W. J., F.R.E.S., *Council*, 4, Vaughan Avenue, Stamford Brook, W.6. *l*, *hym*, *d*.

1945 Valentine, Arthur, Ivey House, West Shepton, Shepton Mallet, Somerset. *ent*.

1922 **Vallins**, F. T., A.C.I.I., F.R.E.S., *Vice-President*, 4, Tattenham Grove, Tattenham Corner, Epsom, Surrey. *Lycaenidae.* (*Life Member.*)

1951 **Varley**, Prof. G. C., M.A., PH.D., F.R.E.S., F.Z.S., Hope Dept. of Entomology, University Museum, Oxford. *hym, d.*

1951 **Viette**, P. E. L., Paris Museum (Entomology), 45 bis, R. de Buffon, Paris 5, France. *l.*

1955 **Vivian**, R. S. A., 76, Beechcroft Avenue, Ipswich, Suffolk. *l.*

1949 **Wade**, D., 17, Waldegrave Avenue, Holderness Road, Hull, Yorks. *l, orn.*

1929 **Wainwright**, **Charles**, B.SC., F.R.I.C., 42, St. Bernards Road, Olton, Warwickshire. *l.*

1911 **Wakely**, Sir **Leonard** D., K.C.I.E., C.B., 37, Marryat Road, Wimbledon, London, S.W.19. *l.*

1947 **Wakely**, L. J. D., O.B.E., M.A., Office of the High Commissioner of the United Kingdom, Accra, Ghana. *l.*

1930 **Wakely**, S., *Council*, 26, Finsen Road, Ruskin Park, London, S.E.5. *l.*

1951 **Walker**, D. H., B.SC. (ENG.), A.M.I.C.E., "Bellargus", Elmfield Way, Sanderstead, Surrey. *l.*

1953 **Wallis**, J. L. P., A.R.I.C.S., C.E. in C. Dept., Admiralty, Chamberlain Way, Pinner, Middx.

1935 **Wallis-Norton**, Capt. S. G., 2 Victoria Mansions, Eastbourne, Sussex. *ent.* (*Life Member.*)

1956 **Ward**, W. J. V., B.A., A.R.C.SC., "Haslemere", 23, Darlington Road, Stockton-on-Tees, Durham. *l.*

1936 **Warrier**, R. **Everett**, 99, Braidwood Road, London, S.E.6. *l.*

1939 **Watkins**, N. A., M.A., F.R.E.S., Soldon, Druid Road, Stoke Bishop, Bristol 9, Glos. *l.*

1945 **Watkins**, O. G., F.R.E.S., 20, Torr View Avenue, Peverell, Plymouth, Devon. *l, od.*

1945 **Watson**, R. W., F.R.E.S., "Porcorum", Sandydown, Boldre, nr. Lymington, Hants. *l.*

1926 **Watts**, W. J., 6, Capel Terrace, Southend-on-Sea, Essex. *c.*

1947 **Weal**, R. D., 124, Marmion Avenue, South Chingford, London, E.4. *c.*

1945 **Webb**, **Harry** E., F.R.E.S., 20, Audley Road, Hendon, London, N.W.4. *l.*

1957 **Webb**, N. G. G., Fernshaw, Rockfield Road, Oxted, Surrey. *l.*

1945 **Weddell**, B. W., 13, The Halve, Trowbridge, Wilts. *ent.*

1953 **West**, B. B., 1, Pond Square, London, N.6. *l, od.*

1947 **West**, B. K., Slim School (F.A.R.E.L.F.), Cameron Highlands, Malaya. *l.*

1945 **Wheeler**, A. S., 26, Ashurst Road, Tadworth, Surrey. *l.*

1948 **Whicher**, L. S., F.R.E.S., A.I.AE.E., 6, Chisholm Road, Richmond, Surrey. *c.*

1954 Whitehead, J., 16, Westbourne Arcade, Bournemouth, Hants. *l.*

1946 Whitehorn, K. P., F.R.E.S., "Spindles", Windsor Road, Gravesend, Kent. *l.*

1920 Wightman, A. J., F.R.E.S., 67, The Spinney, Pulborough, Sussex. *l (noctuae).*

1958 Wilding, N., 66, Brabourne Rise, Beckenham, Kent.

1946 Wildridge, W., "Flavion", Penn Road, Park Street, Nr. St. Albans, Herts. *ent.*

1955 Wilkinson, C., F.Z.S., F.R.E.S., "Sandbank", Thurlestone, Nr. Kingsbridge, S. Devon. *l.*

1947 Wilkinson, W., The Bungalow, Moor Lane, New Waverton, Nr. Chester. *ent, isoptera.*

1947 Williams, Mrs. E. F., Gresham Cottage, Cornsland, Brentwood, Essex. *l.*

1945 Williams, E. F., F.R.E.S., Gresham Cottage, Cornsland, Brentwood, Essex. *l.*

1957 Williams, E. O., M.A., F.R.C.S., M.R.C.O.G., "Bonners", Hambledon, Surrey. *l.*

1947 Williams, E. P., Woodmanton, Mount Avenue. Hutton, Essex. *l, od.*

1948 Williams, L. H., PH.D., B.SC., 31, Armour Road, Tilehurst, Reading, Berks. *ent.*

1932 Williams, S. W. C., 17, Beresford Road, Chingford, London, E.4. *l.*

1951 Wood, E. F., 18, Nursery Road, Prestwich, near Manchester, Lancs. *l.*

1956 Woodward, R. J., 65, Valleyfield Road, Streatham, S.W.16. *rh.*

1927 Worms, C. G. M. de, M.A., PH.D., F.R.I.C., F.R.E.S., M.B.O.U., "Three Oaks", Shore's Road, Horsell, Woking, Surrey. *l, orn.*

1957 Wright, A. E., 9, Albert Court Mansions, Kensington, London, S.W.7. *rh, esp. Satyridae.*

1955 Wright, David, Whitehill House, Whitehill, Bordon, Hants. *l.*

1949 Wrightson, A. L., 93, Morse Street, Lower Brunshaw, Burnley, Lancs. *l.*

1945 Wykes, N. G., Carter House, Eton College, Windsor, Berks. *l.*

1951 Wynn, R. A. W., 14, Nursery Avenue, Hale, near Altrincham. Cheshire. *ec. ent, hem.*

1957 Yano, J., c/o Iwai & Co., Capel House, 54, New Broad Street, London, E.C.2. *rh.*

1945 Youden, George H., F.R.E.S., 18, Castle Avenue, Dover, Kent. *l.*

1950 Young, Miss G. M., 30, Cranley Gardens, Palmers Green, London, N.13. *l.*

1952 Young, L. D., 55 , Ottways Lane, Ashtead, Surrey. *ent.*

Members will greatly oblige by informing the Hon. Secretary of any errors in, additions to, or alterations required in the above addresses and descriptions.

Geographical List of Members arranged under Country, County and Town in Alphabetical Order

ENGLAND.

BEDS.
Leighton Buzzard.
Reid, J. F.

BERKS.
Finchampstead.
Hyde, R. A.
Mortimer.
Easton, N. T.
Newbury.
Saundby, R. H. M. S.
Reading.
Baker, B. R.
Dolton, H. L.
Runge, C.
Williams, L. H.
Sunninghill.
Southwood, T. R. E.
Wallingford.
Newman, D. E.
Wantage.
Smith, F. W.
Windsor.
Halstead, D. G. H.
Wykes, N. G.

BUCKS.
Aylesbury.
Spittles, C. E.
Bletchley.
Kershaw, S. H.
Richardson, N. A.
Chalfont St. Giles.
Smith, F. G.
Chalfont St. Peter.
Ansorge, E.
Great Missenden.
Stedall, H. P. P.
High Wycombe.
Oliver, G. B.
Oliver, G. H. B.
Newport Pagnell.
Cripps, C. H.

CAMBS.
Cambridge.
Carter, R. A.
Raven, C. E.
Rivers, C. F.
Storey, W. H.
Ely.
Harvey, J. G.
Wisbech.
Elgood, W. S.

CHESHIRE.
Altrincham.
Wynn, R. A. W.
Bebington.
Prichard, R.
Caldy.
Clarke, C. A.
Chester.
Smith, S. G.
Nantwich.
Boyes, J. D. C.
New Waverton.
Wilkinson, W.
Northwich.
Crewdson, R. C. R.
Stalybridge.
Charlson, S.
Wilmslow.
Kloet, G. S.
Wirral.
Hardy, D. E.

CUMBERLAND.
Brampton.
Johnson, G. F.
Penrith.
Davidson, W. F.
Hervey, G. A. K.

DERBYSHIRE.
Derby.
Atherley, Miss M.
Ilkeston.
Blasdale, P.
Shardlow.
Cooper, B. A.

DEVON.
Ashburton.
Kennard, H. A.
Stidston, S. T.
Axminster.
Bliss, A.
Bishops Teignton.
Coleridge, W. L.
Kingsbridge.
Wilkinson, C.
Plymouth.
Watkins, O. G.
Sampford Peverell.
Lyon, F. H.

Torquay.
Lees, F. H.
Totnes.
Atkinson, J. L.

DORSET.

Blandford.
Pring, M.
Broadmayne.
Philpott, V. W.
Dorchester.
Lisney, A. A.

DURHAM.

Barnard Castle.
Robson, J. P.
Chester-le-Street.
Dunn, T. C.
Darlington.
Moon, H. N.
Gateshead.
Montgomery, J. R. P.
Stockton-on-Tees.
Ward, W. J. V.
Sunderland.
Jefferson, T. W.

ESSEX.

Brentwood.
Stanley-Smith, F.
Williams, E. F.
Williams, Mrs. E. F.
Colchester.
Blaxill, A. D.
Firmin, J.
Pearce, C. J.
Pearson, A. J. R.
Harlow.
Forster, H. W.
Hornchurch.
Rawlings, C. J.
Hutton.
Williams, E. P.
Loughton.
Lockington, N. A.
Payne, R. M.
Sutton, G. R.
Mistley.
Rose, I. C.
Rayleigh.
More, D.
Shenfield.
Friedlein, A. F. E.
Southend-on-Sea.
Watts, W. J.
Southminster.
Dewick, A. J.
Thorpe Bay.
Johnson, F. L.
Waltham Abbey.
Sculthorp, A. H.
Westcliff-on-Sea.
Huggins, H. C.

GLOS.

Bristol.
Bell, C. L.
Campbell, A. M. L.
Ellison, E. F. D.
Hinton, H. E.
Watkins, N. A.
Gloucester.
Redgrave, A. C. R.
Minchinhampton.
Richardson, A.
Stroud.
Demuth, R. P.
Peacey, A. F.
Tetbury.
Newton, J.

HANTS.

Alton.
May, J. T.
Andover.
Maxwell, R. M.
Basingstoke.
Goodliffe, F. D.
Bishopstoke.
Ray, H.
Bordon.
Schofield, C. H.
Wright, D.
Bournemouth.
Curtis, W. P.
Fraser, F. C.
Symes, H.
Turner, H. J.
Whitehead, J
Brockenhurst.
Burgess, L. W.
Burley.
Mackworth-Praed, C. W.
Christchurch.
Barton, B. C.
Eastleigh.
Curl, B. J. A.
Farnborough.
Parfitt, R. W.
Fleet.
Richards, A. W.
Fordingbridge.
Burton, P. J.
Gosport.
Burns, B. S.
Liss.
Brooke, W. M. A.

Lymington.
Farwell, I. G.
Stewart, R. H. A.

Micheldever.
Dixon, C. H.

North Warnborough.
Potter, N. B.

Portsmouth.
Langmaid, J. R.

Romsey.
Ransome, A. L.

Rowlands Castle.
Stanley, F. C.

Sandy Down.
Watson, R. W.

Warblington.
Sperring, A. H.

Winchester.
Blyth, S. F. P.
ffennell, D. W. H.

HERTS.

Arkley.
Howarth, H.
Howarth, T. G.

Barnet.
Calderara, P.

Bishop's Stortford.
Allan, P. B. M.
Ashwell, D. A.
Craufurd, C.
Mellows, C.

Broxbourne.
Thorn, B. A.

Croxley Green.
Lydgate-Bell, H. G.

Kings Langley.
Dunk, H. C.

Redbourn.
Bowden, S. R.

St. Albans.
Byers, F. W.
Edwards, G. G.
Wildridge, W.

Tring.
Goodson, A. L.

I. OF WIGHT.

Cowes, East.
Saunt, J. W.

KENT.

Ashford.
Cue, P.
Duffield, C. A. W.
Rudland, W. L.
Scott, E.

Aylesford.
Davis, G. A. N.

Beckenham.
Lane, A. W.
Wilding, N.

Bexley.
Ford, L. T.
Goodden, R. C.
Newman, L. H.

Borough Green.
McDermott, C. A.

Boxley.
Frazer, J. F. D.

Broadstairs.
Harbottle, A. H. H.

Bromley.
Cox, W. A. A.
Jacobs, S. N. A.

Deptford.
Murray, E. G.

Ditton.
Jenner, D.
Llewelyn, J. R.

Dover.
Youden, G. H.

East Malling.
Massee, A. M.

Folkestone.
Morley, A. M.
Self, K. W.

Gravesend.
Trundell, E. E. J.
Whitehorn, K. P.

Littlebourne.
Marsh, D. G.

Maidstone.
Grant, F. T.
Phillips, A.

Orpington.
Gowing-Scopes, E.
Line, H. V.
Siggs, L. W.

Otford.
Manley, W. B. L.
Manley, Mrs. W. B. L.

Ramsgate.
Lanfear, A. H.

Sandhurst.
Bull, G. V.

Sevenoaks.
Busbridge, W. E.
Coxon, G. F.

Shortlands.
Morris, M. G.

Sidcup.
Ling, R. B.
Taylor, H. G. W.
St. Mary Cray.
Chatelain, R. G.
Tunstall
Allen, P. V. M.
Westerham.
Edwards, R. C.
West Malling.
Painter, H. L.
West Wickham.
Chalmers-Hunt, J. M.
Owen, G. V.
Wilmington.
Honeybourne, T. J.

LANCS.
Accrington.
Thornton, J.
Blackburn.
Bryce, D.
Bolton.
Coxey, S.
Burnley.
Wrightson, A. I.
Formby.
Leech, M. J.
Grange-over-Sands.
Heath, J.
Manchester.
Michaelis, H. N.
Wood, E. F.
Nelson.
Brindle, A.
Jopson, F. L.
Southport.
Greenwood, K. C.

LEICESTERSHIRE.
Market Harborough.
Buckler, H. A.
Stoke Golding.
Murray, D. P.

LINCS.
Grantham.
Platts, J. H.
Grimsby.
Jeffs, G. A. T.
Lincoln.
James, B. C.
Market Rasen.
Court, T. H.
Scunthorpe.
Gooseman, M. P.
Skellingthorpe.
Small, H. M.

LONDON.
E.4. *Chingford.*
Pinniger, E. B.
Shaw, R. G.
Weal, R. D.
Williams, S. W. C.
E.7. *Forest Gate.*
Baxter, L. N.
Baxter, R. N.
E.11. *Wanstead.*
Butterfield, A. W.
Syms, E. E.
E.C.2. *City.*
Yano, J.
N.1. *Canonbury*
Buck, F. D.
N.3. *Finchley.*
Griffiths, G. C. D.
N.6. *Highgate.*
West, B. B.
N.12. *Finchley.*
Cross, G. S. E.
N.13. *Palmers Green.*
Young, G. M.
N.19. *Upper Holloway.*
Knight, F.
N.20. *Whetstone.*
Lorimer, R. I.
Lovell, R.
N.W.1. *Regent's Park.*
Hemming, A. F.
N.W.3. *Hampstead.*
Carter, C. I.
Keith-Johnston, C.
Spencer, K. A.
N.W.4. *Hendon.*
Webb, H. E.
N.W.6. *Hampstead.*
Hillaby, J. D.
N.W.7. *Mill Hill.*
Goater, B.
Howard, A. P.
N.W.8. *Regent's Park.*
Ashby, G. J.
Hall, S. S.
Leston, D.
N.W.9. *Kingsbury.*
Turner, A. D.
S.E.2. *Abbey Wood.*
Showler, A. J.
S.E.3. *Blackheath.*
Gould, A. W.
S.E.5. *Ruskin Park.*
Wakely, S.
S.E.6. *Catford.*
Warrier, R. E.
S.E.8. *Deptford.*
Murray, E. G.
S.E.18. *Plumstead.*
Ashby, F. A.

Hards, C. H.
Popham, W. J.
S.E.21. *Dulwich.*
Aston, A. E.
Dillon, T. J.
S.E.23. *Forest Hill.*
Cornelius, J. A.
S.E.24. *Herne Hill.*
Imber, S. F.
S.E.25. *South Norwood.*
Lewis, E.
Nissen, C. L.
S.E.27. *W. Norwood.*
Skinner, B. F.
S.W.1. *Westminster.*
Gordon, D. J.
Harrison-Gray, M.
Marsh, J. C. S.
Matthews, D. P. L.
Prideaux, A. G.
S.W.2. *Tulse Hill.*
Hawgood, D. A.
S.W.3. *Chelsea.*
Cadbury, B.
S.W.6. *Fulham.*
Richards, R. F.
Tams, W. H. T.
S.W.7. *S. Kensington.*
Evans, E.
Richards, O. W.
Roche, C. G.
Wright, A. E.
S.W.11. *Battersea.*
Mansell, G. H.
S.W.13. *Barnes.*
Hodgkinson, A.
S.W.15. *Putney.*
Swain, H. D.
S.W.16. *Streatham.*
Christie, J.
Christie, L.
Woodward, R. J.
S.W.17. *Tooting.*
Allen, D. M.
S.W.18. *Wandsworth.*
Hall, D. G.
Michaud, J.
S.W.19. *Wimbledon.*
Martin, E. L.
S.W.20. *Merton Park.*
Coulson, F. J.
W.2. *Bayswater.*
Hornabrook, R. W.
W.5. *Ealing.*
Hanson, S. M.
W.6. *Hammersmith.*
Uffen, R. W. J.
W.8. *Kensington.*
Craske, R. M.
W.9. *Maida Hill.*
Peters, W.
W.C.1. *Holborn.*
Feilden, G. St. Clair.
Janson, D. B.

MIDDLESEX.
Bedfont.
Kindred, A. D.
Eastcote.
Goodban, B. S.
Edgware.
Akester, W. J.
Enfield.
Eagles, T. R.
Feltham.
Classey, E. W.
Harrow.
Riordan, B. D.
Hayes.
Moppett, A. A.
Hounslow.
Gerard, B. McC.
Isleworth.
Bradley, J. D.
Pinner.
Minnion, W. E.
Saunders, J. M. K.
Wallis, J. L. P.
Ruislip.
Alford, D. V.
Stanmore.
Harris, W. H. A.
McCrae, A. W. R.
Teddington.
Ferguson, L. F.
Twickenham.
Stallwood, B. R.

NORTHANTS.
Northampton.
Spoczynska, J. O. I.
Peterborough.
Pooles, S. W. P.
Roade.
Humphrey, S. W.
Wellingborough.
Gent, P. J.
Payne, J. H.

NOTTS.
Burton Joyce.
Torlesse, A. D.

OXFORDSHIRE.
Blackthorne.
Moore, D. R.
Oxford.
Bailey, K. E. J.
Ford, E. B.
Kettlewell, H. B. D.
Varley, G. C.

SOMERSET.

Burnham-on-Sea.
Heslop, E. A.
Heslop, I. R. P.
Frome.
Cruttwell, G. H. W.
Taunton.
Turner, A. H.
Weston-super-Mare.
Blathwayt, C. S. H.
West Shepton.
Valentine A.

SUFFOLK.

Ipswich.
Beaufoy, S.
Vivian, R. S. A
Stowmarket.
Chipperfield, H. E.

SURREY.

Addiscombe.
Bush, D. J. B.
Ashtead.
Brush, H. J.
Young, L. D.
Banstead.
Gardner, A. E.
Last, H. R.
Perry, K. M. P.
Rumsey, F.
Carshalton.
Groves, E. W.
Carshalton Beeches.
Thorpe-Young, D. W.
Cheam.
Baker, D. B.
Struthers, F. M.
Chiddingfold.
Mere, R. M.
Chipstead.
Bolton, E. L.
Chobham.
Lawson, P. H.
Churt.
Baker, J. A.
Claygate.
Maitland-Smith, G.
Perkins, J. F.
Clevedon.
Bird, H. W.
Cobham.
Purefoy, J. B.
Coulsdon.
Denvill, H G.
Ferrier, W. J.
Coulsdon (Old).
Britten, H.
Cranleigh.
Collier, A. E.
Croydon.
Jacoby, M. C
Dorking.
Cole, G. A.
Haynes, R. F.
Howard, J. O. T.
Epsom.
Vallins, F. T.
Esher.
Brett, G. A.
Craske, J. C. B.
Ennis, L. H.
Short, H. G
Ewell.
Tunstall, H. G.
Ewell (East).
Lang, R. M.
Fetcham.
Hickin, N. E.
Frensham.
Gurdon, J. B.
Guildford.
Garland, W. A
Hambledon.
Williams. E. O.
Haslemere.
Tidmarsh, A. C. B.
Tidmarsh, J. S. C.
Horsley (East).
Crow, P. N.
Kingswood.
Agassiz, D. J. L.
Leigh.
Fairclough, R.
Merton Park.
Coulson, F. J.
New Malden.
Spreadbury, W. H.
Ottershaw.
Bretherton, R. F.
Parsons, R. E. R.
Oxted.
Webb, N. G. G.
Pirbright.
Lawson, H. B.
Purley.
Henderson, J. L.
Redhill.
Rait-Smith, W.
Richmond.
Phelps, C. C.
Whicher, L. S.

Sanderstead.
Russwurm, A. D. A.
Stockley, R. E.
Walker, D. H.
Selsdon.
Foster, T. B.
Stoneleigh.
Hutchings, H. R
Sutton.
Bolingbroke & St. John
Danby, G. C.
Frohawk, M. J.
Summers, E. J.
Tadworth.
Wheeler, A. S.
Thornton Heath.
Parmenter, L.
Wallington.
Brown, F. C.
Niblett, M.
Weybridge.
Beesley, W. N.
Best, A. A.
Messenger, J. L.
Wimbledon.
Dacie, J. V.
Hawkins, C. N.
Jarvis, C. McK.
Riley, N. D.
Tubbs, M.
Tubbs, R. S.
Wakely, L. D.
Woking.
Greenwood, J. A. C.
Stoughton-Harris, G.
Worms, C. G. M. de.
Worcester Park.
Hyde-Wyatt, B.
Richardson, A. E.

SUSSEX.

Arundel.
Haggett, G. M.
Billingshurst.
Curtis, A. E.
Marcon, J. N.
Bognor Regis.
Clark, J.
Jarvis, F. V. L.
Brighton.
Banner, J. V.
Dyson, R. C.
Chichester.
Boyce, B.
Eastbourne.
Ellison, E. F. D.
Ellison, R. E.
Stoner, A. J.
Wallis-Norton, S. G.
East Preston.
Higgins, W. J.
Ferring-by-Sea.
Menzies, I. S.
Hailsham.
Manley, G. E. L.
Hastings.
Astbury, C. F.
Homer, T. J. G.
Horsham.
Langton, P. H.
Horsted Keynes.
Hoare-Ward, J. W.
Littlehampton.
Jay, E. P.
Newick.
Embry, B.
Pulborough.
Odd, D. A.
Robertson, G. S.
Wightman, A. J.
Ringmer.
Gully, J. G.
Rye.
Tweedie, M. W. F.
Wisborough Green.
McClure, A. M.
Worthing.
Edwards, F. H.

WARWICKSHIRE.

Birmingham.
Bowater, W.
Evans, L. J.
Hammond, H. E.
Noble, F. A
Siviter Smith, P.
Timms, C.
Olton.
Wainwright, C.
Solihull.
Allen, D.
Carlier, S. E. W.
Price, G. C.
Tysoe.
Trought, T.

WESTMORLAND.

Kendal.
Birkett, N. L.

WILTS.

Salisbury.
Temple, V.
Tilshead.
Gilman, H. C. R.
Trowbridge.
Weddell, B. W.

Warminster.
Jackson, R. A.

WORCESTERSHIRE.
Redditch.
Latham, F. H.
Stanton.
Burton, R. J.

YORKS.
Doncaster.
Hyde, G. E.
Dronfield.
Fearnehough, T. D.
Hull.
Wade, L.
Leeds.
Newton, J. L.
Taylor, A. S.
Sheffield.
Reid, W.
Shipley.
Hewson, F.
Kemp, J. K. C.

IRELAND.

CO. DUBLIN.
Dublin.
Talbot de Malahide.
Glenageary.
Baynes, E. S. A.

SCOTLAND.

ABERDEENSHIRE.
Aberdeen.
Morison, G. D.

DUMFRIES-SHIRE.
Collin.
Balfour-Browne, W. A. F.
Dumfries.
Cunningham, D.

FIFE.
St. Andrews.
Jackson, D. J.

INVERNESS-SHIRE.
Newtonmore.
Harper, G. W.
Harper, M. W.

MIDLOTHIAN.
Edinburgh.
Dunbar, J. G.
Macnicol, D. A. B.
Pelham-Clinton, E. C.

WALES.

GLAMORGAN.
Cardiff.
Hurworth, P.
Roche, P. J. L.
Port Talbot.
Morgan, H. D.

CHANNEL ISLANDS.

Guernsey.
Smith, D. S.

ABROAD.

EUROPE.
Austria.
Klimesch, J.
Czechoslovakia.
Polacek, V. B.
Denmark.
Carolsfeld-Krause, A. G.
Olsen, E. T.
France.
Herbulot, C.
Viette, P. E. L.
Germany.
Lipscomb, C. G.
Italy.
Storace, L.
Sweden.
Torstenius, S.

AFRICA.
Ghana.
Ives, D. H.
Wakely, L. J. D.
Kenya.
Sevastopulo, D. G.

Nigeria.
MacNulty, B. J.
Rhodesia.
Daly, D. W.
Tanganyika.
Dudbridge, B. J.
Zululand.
Fraser, R. A.

AMERICA.
Argentina.
Hayward, K. J.
Canada.
Beirne, B. P.
Connecticut (U.S.A.).
Gifford, W. S.
New York (U.S.A.).
Klots, A. B.

ASIA.
Hong Kong.
Burkhardt, V. R.
Iran.
Robinson, P. J. M.
Japan.
Asahina, S.
Malaya.
Robinson, H. S.
Stubbs, G. C.
West, B. K.

AUSTRALIA.
New South Wales.
O'Farrell, A. F.
Tasmania.
Couchman, L. E.
Victoria.
Moore, B. P.

COUNCIL'S REPORT FOR 1957

Your Council is pleased to report another satisfactory year. Membership stood at 500 on 31st December last, which is one less than last year. It is composed of 2 Honorary, 3 Special Life, 15 Life, 229 Ordinary and 251 Country Members. Mr. F. T. Grant, who joined the Society in 1924, was made an Honorary Member on 12th December. During the year 7 members died. They were Messrs. L. C. Bushby, A. V. Hedges, P. Harwood, A. Smith, J. Fincham Turner, D. Watson and H. O. Wells.

Other changes in membership were the election of 21 new members, the resignation of 8, and the removal of 7 whose subscriptions were overdue.

The Proceedings and Transactions for 1955 were published in March and those for 1956 in October, in time for distribution at the Annual Exhibition. The production of two volumes in the year has brought publication up to date, and we are greatly indebted to our Hon. Editor for this achievement. The 1955 volume consisted of xlii + 189 pages, 8 plates (3 coloured) and 33 text figures and the 1956 volume xlvii + 177 pages, 9 plates and 23 text figures.

Your Council gratefully acknowledges the receipt, through the Royal Society, of a Parliamentary Grant-in-aid of £150 towards the cost of the 1954-5 and 1955 volumes, and of £60 towards the 1956 volume. Thanks are also due to Mr. K. A. Spencer who donated the four printing blocks illustrating field meeting parties.

The Annual Exhibition at Burlington House was of the customary high standard despite one of the most unrewarding summers for years. A break with tradition, in making Foreign Lepidoptera the group for special attention, brought a great response from members who had collected abroad, and many beautiful and little-known species were shown. Mr. Tams and Mr. Howarth again devoted their time to selecting and photographing specimens suitable for illustration in the Proceedings. The owners of selected exhibits were notified by means of gummed slips which told them where to take their specimen to be photographed. This device was highly successful and saved much time. Attendance was good; 264 members and visitors signed the Attendance Register.

The usual 21 Ordinary Meetings were held during the year, and your Council has pleasure in recording the friendly co-operation of the staff of the Junior Institution of Engineers, in whose Rooms we are so comfortably installed. Mr. Howarth again produced a very interesting programme, and the Projectors were frequently in use. There has been a welcome increase in the number of exhibits shown at these meetings, and discussion has been lively and stimulating.

Mr. S. Wakely, after devoting his time for a number of seasons to the arrangement of the Field Meetings programme, has decided to retire. Mr. R. W. J. Uffen, who is a regular supporter of Field Meetings, has taken on this work and is certain to maintain Mr. Wakely's high standard. We are grateful to Mr. Wakely for his services, and to those responsible for leading meetings and submitting reports for publication. In particular, we extend our thanks to those ladies who kindly provided tea in their homes. This year our hostesses were Mrs. Loarridge, Mrs. Manley, Mrs. Mere and Mrs. Odd. Twenty-seven meetings were held, and despite some indifferent weather, they were enjoyed by all who attended.

This year the Society has been fortunate in receiving £1,000 from Dr. Cockayne's estate, and in having its collections enriched by the bequest of the late Mr. H. O. Wells. This collection of British Lepidoptera, housed in two large cabinets, contains many rare and notable varieties, mostly among the Rhopalocera. Of great value also is the collection of British Hemiptera, generously offered to the Society by Mr. D. Leston. Your Council has been pleased to accept the Leston Collection, and it is proposed to incorporate the Society's material and to house the whole in one of the Wells cabinets. The work on the Andrews Collection of Diptera and the King Collection of Lepidoptera is at an advanced stage.

During the year many members have presented specimens. Of special interest are *Somotrichus unifasciatus* Dej. (Col., Carabidae) from Brazil nuts, Hull Docks, Yorks., presented by Dr. B. P. Moore; *Harmonia quadripunctata* (Pont.) (Col., Coccinellidae), Wood Walton Fen, Hunts., by Dr. J. L. Newton; *Micracanthia marginalis* (Fall.) s.sp. *imitator* Linnav. (Hem., Saldidae), Esher, Surrey, by D. Leston; and *Cosymbia puppillaria* Hb. (Lep., Geometridae) imagines from Scilly Isles by R. M. Mere and larvae by R. M. Mere, G. Haggett and H. E. Hammond. Specimens were also presented by Miss C. A. McDermott (Lepidoptera), F. D. Buck (Coleoptera and Hymenoptera), A. E. Gardner (Coleoptera, Lepidoptera and Orthoptera), B. Goater (Lepidoptera), Dr. B. P. Moore (Lepidoptera), Rev. D. P. Murray (Lepidoptera), F. Rumsey (Trichoptera), H. G. Tunstall (Lepidoptera and Trichoptera) and Sir Leonard D. Wakely (Lepidoptera). The best thanks of the Society are due to these members for the many valuable additions to our collections.

During the year several members and specialists at the British Museum (Natural History) have borrowed material for critical examination, a facility always available to the serious worker.

The Librarian reports that during 1957 the chief event has been the receipt of the books bequeathed by the late Dr. E. A. Cockayne. There were about 100 bound volumes (nearly all on Lepidoptera) and long runs of the Proceedings of various Societies. Many of these too were bound. The Society already had copies of some of the books and many of the Proceedings, but duplicates are often very useful. For instance, the Library now contains second copies of the large paper Barrett with coloured plates, of Tutt's British Lepidoptera and of Buckler's Larvae. Books new to the Library include valuable Continental works on larvae and some beautiful Scandinavian books with coloured plates of imagines. Space had to be found for all these additions, a specially printed label was put in each to record the bequest, the Society's own label had to be inserted and index cards prepared. Much of this work was attended to by Mr. F. T. Vallins, to whom the Society is greatly indebted.

The Society is indebted to the authors for the presentation of the following: Mr. T. G. Howarth, *A Revision of the Genus Neozephyrus Sibatani and Ito (Lep. Lycaenidae)* and Mr. Patrick Matthews, *The Pursuit of Moths and Butterflies.*

The Society's set of Handbooks for the Identification of British Insects was found to be incomplete and the missing parts have been purchased. Further parts of Wolfgang Stichel's work on Hemiptera-Heteroptera have been purchased as they appeared.

Other important purchases were: Ribaut, H., *Faune de France 31, Homoptéres Auchénorhynches, I, 1936 (Typhlocybidae)* and *II, 1952 (Jassidae)*; Stanislaw Bleszynski, *Revision of the European species of the Generic Group Crambus F. s.l.*; Clapham, A. R., Tutin, T. G. and Warburg, E. F., *Flora of the British Isles* (the first edition reprinted with corrections); Ramsbottom, J., *Mushrooms and Toadstools*; Imms, A. D., *A General Textbook of Entomology* (the recently issued ninth Edition, which is revised and extended); Wiltshire, E. P., *The Lepidoptera of Iraq.*

Also added to the Library by purchase or exchange were: *Entomologist*; *Entomologist's Monthly Magazine*; *Entomologist's Record*; *Entomologist's Gazette*; *Proceedings and Transactions, Royal Entomological Society of London*; *Journal and Transactions, Society for British Entomology*; *Canadian Entomologist*; *Entomological News*; *Tijdscrift voor Entomologica*; *Opuscula Entomologica*; *Zoologiska Bidrag*; *Mitteilungen der Münchener entomologischen Gesellschaft*; *Beiträge zur Entomologie*; *Lloydia*; *Transactions, Wisconsin Academy of Science*; *Fieldiana (Zoology)*; *Bulletin Société Entomologique de Belgique*; *Essex Naturalist*; *London Naturalist and Bird Report*; *Proceedings, Isle of Wight Natural History Society*; *Proceedings, Lincolnshire Naturalist's Union*; *Transactions, Norfolk and Norwich Naturalist's Society*; *Natural History, New York*; *Smithsonian Institute Reports*; *Annali Museo Civico di Storia Naturale, Genova*; *Doriana*; *Tulane Studies in Zoology.*

As a result of an exchange agreement we have now received *Beiträge zur naturkundlichen Forschung in Sudwestdeutschland* from 1942 to date.

TREASURER'S REPORT for 1957

The accounts which I shall presently read to you will show considerable difference from those presented at a General Meeting in recent years, or for that matter at any time since the Society's foundation.

The outstanding event of the year in my department was the receipt of the bequest of £1,000 from the Trustees of our late member, Dr. E. A. Cockayne. This sum is five times the amount of any legacy previously received by the Society from a member. The bequest is for the general purposes of the Society, so that we are at liberty to use the income from it for whatever is most needed.

CAPITAL ACCOUNT.

The balance of this account now stands at £2348 17s 10d after adding the legacy and £16 10s, the proceeds of sale of a small cabinet.

BALANCE-SHEET.

There are several changes in our investments. The £100 3% Defence Bonds were encashed and replaced with the current 4½% issue of the same class of security. With the legacy we purchased £450—4% Consols, £400—3½% War Loan, and £400—4½% Defence Bonds; thus adding to the Society's investment income £51 10s in a full year.

The market value of our securities as a whole is about two-thirds of the nominal, and little more than three-quarters of their cost, but it will be remembered that some of the early investments were made in very different times, and War Loan yielded 5% in those days.

INCOME AND EXPENDITURE ACCOUNT.

Our expenses were remarkably similar to those of the year before. Income from subscriptions was less by £36, largely because there was not so much in arrears to be collected. Investment interest increased by £10 10s, one of the new holdings having yielded a half-yearly payment. The surplus, after grants to the Publication and Library Funds, amounts to £124 3s 10d.

PUBLICATION FUND.

For the first time in five years I knew the exact cost of printing the "Proceedings" before closing my books. The cost of the 1956 issue was £431 14s 8d, not including the blocks of the Field Meeting groups, again kindly provided by Mr. Spencer. To meet this we had nearly £40 over from the sum provided for the 1955 issue; ten guineas, as usual, from the Misses Chapman's War Loan; £58 13s 6d from sales of "Proceedings"—the highest ever, but two issues appeared during the year. All the same, the record total of £33 in 1949 was almost equalled twice over. The Royal Society allotted £60 from the Parliamentary Grant-in-Aid of Scientific Publications, and a grant of £260 from our own revenue made up the necessary balance.

Our thanks are due to Mr. Jacobs and Mr. Stoughton-Harris, who have audited the accounts.

BALANCE-SHEET at 31st December 1957.

Capital Fund—		
General	£2,043 18 1	
Publication	304 19 9	
		£2,348 17 10
Special Funds—		
Library	£109 2 1	
Publication	4 3 7	
		113 5 8
Subscriptions Paid in Advance		38 5 0
Sundry Creditors		387 9 0
Income and Expenditure Account—		
Balance at 1st January 1957	£312 5 6	
Add Excess of Income over Expenditure for the year	124 3 10	
		436 9 4
		£3,324 6 10

Note.—The Society's Books, Cabinets, Furniture, etc., are Insured for £2,000, and the Hon. Secretary's Office Equipment for £100.

Investments at Cost—		
General (including Ashdown, Lachlan-Gibb, Lile, Robert Adkin, Fountaine, Hugh Main, Labouchere, and Cockayne bequests).		
£591 15s 3d 3½% Conversion Stock ...	£545 11 6	
£600 0s 0d 2½% Consolidated Stock	417 17 0	
£850 0s 0d 4% Consolidated Stock	703 13 4	
£500 0s 0d 4½% Defence Bonds ...	500 0 0	
£400 0s 0d 3½% War Stock	271 16 0	
Publication (gift of the late Misses E. F. and L. M. Chapman in memory of their brother).		
£300 0s 0d 3½% War Stock	304 19 9	
		£2,743 17 7
Note.—Market value at 31st December 1957—£2184.		
Sundry Debtors		87 4 6
Cash at Bank—		
Deposit Account	£270 10 11	
Current Account	218 14 9	
		489 5 8
Cash in Hand		3 19 1
		£3,324 6 10

Audited and found to be correct.
S. N. A. JACOBS,
G. STOUGHTON-HARRIS, F.C.A.,
23rd January 1958.

J. L.. HENDERSON, Hon. Treasurer.

CAPITAL ACCOUNT—Year ended 31st December 1957.

Transfer to Library Fund	£7 17 6	Balance at 1st January 1957	£1,332 7 10
Balance at 31st December 1957	2,348 17 10	Proceeds of Sale of a Cabinet	16 10 0
		E. A. Cockayne Bequest	1,000 0 0
		Entrance Fees	7 17 6
	£2,356 15 4		£2,356 15 4

INCOME AND EXPENDITURE ACCOUNT—Year ended 31st December 1957.

Rent of Rooms	£133 13 0		Subscriptions (arrears and current)		£568 18 0
Insurance	2 3 0		Interest—		
Cleaning, Gratuities and Removals	11 10 0		£591 15s 3d 3½% Conversion Stock	£20 14 2	
Secretarial Expenses	56 6 5		£600 0s 0d 2½% Consolidated Stock	15 0 0	
Treasurer's Expenses	10 13 9		£400 0s 0d 4% Consolidated Stock	16 0 0	
		£214 6 2	£100 0s 0d 3% Defence Bonds	3 10 0	
Subscriptions to Wicken Fen Fund, Footpaths Preservation Society, Ramblers' Association, National Trust, Field Studies Council and Conservators of Oxshott Heath		7 9 0	£500 0s 0d 4½% Defence Bonds	5 6 0	
Annual Exhibition Expenses		11 18 3	£400 0s 0d 3½% War Stock	7 0 0	
Grant to Publication Fund		260 0 0	Deposit Interest	11 9 1	
Grant to Library Fund		30 0 0			78 19 3
Balance being Excess of Income over Expenditure, carried to Balance Sheeet		124 3 10			
		£647 17 3			£647 17 3

LIBRARY FUND—Year ended 31st December 1957.

Purchases—		
Books	£41 19 11	
Binding, etc., ...	8 4 0	
		£50 3 11
Balance at 31st December 1957		109 2 1
		£159 6 0

Balance at 1st January 1957	£99 18 6
Composition for Life Membership	21 0 0
Entrance Fees	7 17 6
Donation	0 10 0
Grant from Income and Expenditure Account ...	30 0 0
	£159 6 0

PUBLICATION FUND—Year ended 31st December 1957.

Printing and Posting the "Proceedings and Transactions", 1956 ...	£399 5 0	
Blocks, Half-tone and Line	32 9 8	
		£431 14 8
Balance at 31st Decmber 1957		4 3 7
		£435 18 3

Balance at 1st January 1957	£1 0 10
Excess Provision for the 1955 issue of "Proceedings and Transactions"	39 17 2
Sales of "Proceedings"	58 13 6
Sales of "A Guide to the Smaller British Lepdoptera"	4 7 3
Interest—£300 0s 0d 3½% War Stock (Misses E. F. and L. M. Chapman)	10 10 0
Donations	1 9 6
Grant-in-Aid from the Royal Society	60 0 0
Grant from Income and Expenditure Account ...	260 0 0
	£435 18 3

ABSTRACT OF PROCEEDINGS

INDOOR MEETINGS.

14th FEBRUARY 1957.

The President, Dr. B. P. Moore, F.R.E.S., in the Chair.

Mr. N. G. G. Webb was declared elected a member.

EXHIBITS.

The President—A series of *Carabus granulatus* L. (Col. Carabidae) which comprised both the typical form and the Irish s.sp. *hibernicus* Lindr.

Mr. R. W. J. Uffen—Two dead stems of *Chamaenerion angustifolium* (L.) Scop. bearing galls, almost certainly of *Mompha nodicolella* Fuchs (Lep., Cosmopterigidae) from north of Esher, Surrey, February 1957.

Mr. L. W. Siggs—*Gymnoscelis pumilata* Hb. (Lep., Geometridae) taken at light indoors at Orpington, Kent, 11.i.57.

Mr. A. E. Gardner—Examples of the Egyptian Locust *Anacridium aegyptium* L., and a living specimen of an undetermined desert mantis, all from N. Africa.

Mr. B. K. West—African Lepidoptera (Pieridae) as follows: a gynandrous example of *Colotis ione* Godt. dry season form *jalone* Btlr., taken at Wyliespoort in the Zoutpansberg, N. Transvaal, 9.vii.56, the right side mainly female and the left side largely male; also typical examples, male and female, from Beit Bridge, Limpopo River, and Chuniespoort, N. Transvaal.

COMMUNICATIONS.

The Secretary announced that the late Dr. E. A. Cockayne had bequeathed to the Society the sum of £1,000 and a selection of his books.

The mild weather, it was reported, was having its effect upon Lepidoptera, the following species having been seen: *Polygonia c-album* L. (Nymphalidae), *Gonepteryx rhamni* L. (Pieridae), *Achlya flavicornis* L. (Thyatiridae), *Orthosia incerta* Hufn. (Noctuidae), and *Biston strataria* Hufn. (Geometridae).

A paper on "Swarming Flies", illustrated by 35mm. film strip, was read by Dr. F. van Emden, F.R.E.S.

28th FEBRUARY 1957.

The PRESIDENT in the Chair.

Mr. B. F. SKINNER was declared elected a member.

EXHIBITS.

The PRESIDENT—The Carabid beetle *Promecognathus laevissimus* Dej. from the Californian Highlands, U.S.A.

Mr. S. WAKELY, on behalf of Dr. D. A. B. Macnicol—Microlepidoptera as follows and on which he read the appended notes: (1) *Telphusa alburnella* Dup. (Gelechiidae) from Aviemore. A well-marked example with a superficial resemblance to *T. scriptella* Hb., also examples from Strensall, Yorks., together with *T. proximella* Hb. for comparison. (2) *Augasma aeratellum* Zell. (Heliodinidae) taken at Wimborne, Dorset, last July, and believed to be the only record during the last half century. The larva of this species feeds in a gall on *Polygonum aviculare* agg. (Knotgrass). No old records for Dorset have been found, but it has occurred in the Isle of Wight, Sussex and Essex. (3) *Lithocolletis lautella* Zell. (Gracillariidae) from Lanark, being very dark in comparison with Surrey specimens. (4) *L. kleemannella* F. from Inverness, also very dark compared with examples from Bexley, Kent.

Mr. W. J. HIGGINS—Two examples of *Luperina dumerilii* Dup. (Lep., Noctuidae) taken in a mercury vapour trap, 11.viii.56, at East Preston, near Worthing, Sussex.

Sir ERIC ANSORGE—*Cosymbia linearia* Hb. ab. *strabonaria* Zell. (Lep., Geometridae) which emerged (indoors) during March 1956, from larvae taken at Princes Risborough, S. Bucks., in October 1955. It was suggested by Mr. D. S. Fletcher that artificial heat induced a third generation in this S. European form. Normal examples from S. Bucks. were also shown for comparison.

Mr. R. W. J. UFFEN—An example of the moth *Gymnoscelis pumilata* Hb. (Geometridae) found flying in his bedroom at Chiswick, Middx., 24.ii.57.

Mr. A. E. GARDNER—A preserved larva of the Monarch butterfly, *Danaus plexippus* L. (Danaidae) taken by Capt. E. S. A. Baynes at Tenerife, Canary Islands, in February 1957.

COMMUNICATIONS.

A discussion took place on whether *Danaus plexippus* L. from the Canaries was a distinct race from either the N. or S. American forms.

Commenting on the exhibit of *Gymnoscelis pumilata* Hb. one member stated that there was no time of the year when this insect could not be found and that it would feed on almost anything.

Two cinematograph films were shown, "Sardinian Project" dealing with the eradication of mosquitoes and "The Rival World" showing the activities of insects.

14th MARCH 1957.

The President in the Chair.

EXHIBITS.

The President—Two species of cavernicolous Coleoptera, *Aphaenops cerberi* Dieck (Carabidae) and *Leptodirus schmidti* Mots. (Anisotomidae). Both species are completely blind.

Mr. R. F. Haynes—Specimens of the following Irish Lepidoptera: (1) Dark brown form of *Colostygia didymata* L. (Lep., Geometridae) bred from larvae found in July 1956 at Burrishoole, near Newport, Co. Mayo. (2) A male and a female of *Oporinia filigrammaria* H.S. (Lep., Geometridae) bred from larvae found on heather near Lough Alten, Co. Donegal. (3) Various species of *Oporinia* bred from larvae found on the Glen Veagh Estate, Co. Donegal.

Dr. C. G. M. de Worms—A series of three butterflies to show regional and ecological variation in connection with the possible isolation of colonies over a considerable period of time. (1) *Eumenis semele* L. (Satyridae), six short series showing both sexes with their respective markings, both upperside and underside, from the following localities and types of terrain: Chalk downs (Salisbury, Wilts.); Limestone cliffs (N. Cornwall); Limestone rock (The Burren, Co. Clare, Ireland and Great Orme Head, Llandudno, Caer.); Coastal Sandhills (Forres, Morayshire) and Heathland (New Forest, Hants.). (2) *Coenonympha tullia* Müll. (*tiphon* Rott.) (Satyridae), four series showing decrease in the size of the underside eyespots as the species moves northward, from the following localities: Witherslack, Westmorland; Dumfries-shire; Cairnsmuir, Kirkcudbright; Scottish Highlands. (3) *Plebejus argus* L. (Lycaenidae), four series containing each sex showing variation in the insect according to the type of terrain, etc., from Chalk downs (Eynsford, Kent), Chalk cliffs (Swanage, Dorset), Limestone rock (Great Orme Head, Llandudno, Caer.) and Heathland (New Forest, Hants.).

Mr. Dennis Leston—Living examples of *Hygrobia hermanni* (F.) (Col., Hygrobiidae) with comments on stridulation behaviour and the mechanism concerned.

COMMUNICATIONS.

Dr. de Worms said the Taeniocampidae (Lep.) were well out in Surrey; he had recently taken *Panolis flammea* Schiff. and *Cerastis rubricosa* Schiff. in his trap at Woking, Surrey.

The Secretary said a correspondent in Cornwall had taken *Heliothis peltigera* Schiff. (Lep., Noctuidae) at light on 5th March, which was three months early in his experience.

Mr. W. H. Dowdeswell, F.R.E.S., gave an illustrated talk on "Isolation and adaptation in populations of Lepidoptera" which was followed by a long discussion.

28th MARCH 1957.

The PRESIDENT in the Chair.

EXHIBITS.

The PRESIDENT—Living examples of the Churchyard beetle, *Blaps mucronata* Lat. (Tenebrionidae), taken in an old mill at Farnborough, Hants.

Mr. R. ELDON ELLISON—The five European species of the lepidopterous genus *Euchloë* (Pieridae).

Dr. C. G. M. DE WORMS—A female *Euchloë cardamines* L. (Lep. Pieridae) of a rare form exhibiting albinism, taken in Ireland during 1948. Also a normal female.

Mr. B. K. WEST—Lepidoptera (Nymphalidae) from Eshowe, Zululand, comprising *Precis octavia* Cram. dry season form *sesamus* Trim. and wet season form *natalensis* St., bred from a number of small larvae found on ornamental *Coleus* plants in February 1956.

ANNOUNCEMENTS.

Attention was drawn to the fact that the collections of the Hungarian Natural History Museum in Budapest were destroyed by fire except for the Coleoptera and Lepidoptera which were considerably damaged by water. Dr. W. E. China of the British Museum (Nat. Hist.) had received a list of desiderata from Budapest.

The Editor announced that Mr. K. A. Spencer had generously donated four printing blocks of field meeting parties for publication in our Proceedings for 1956.

COMMUNICATIONS.

Dr. DE WORMS commenting on Lepidoptera said that the season was well advanced. *Aethalura punctulata* Schiff (*punctularia* Hb.) (Geometridae) had occurred and was some six weeks earlier than last year. *Heliothis peltigera* Schiff. (Noctuidae) and *Pieris rapae* L. (Pieridae) were out, and the sallows in his area were over.

Mr. CHALMERS HUNT reported seeing *Pieris rapae* L. as early as 14.ii.57. The SECRETARY said *Heliothis peltigera* Schiff. had occurred twice near London, once at Totteridge, Middx., and again at Pinner, Middx., both on the same night, 24th March; he added that *Discestra trifolii* Hufn. (Noctuidae) had been taken at Mill Hill, Middx.

Mr. R. ELDON ELLISON had had a very different experience, and to date little of importance had occurred at Eastbourne, Sussex.

MR. R. M. MERE agreed that Lepidoptera were coming to light in large numbers at Chiddingfold, Surrey: *Polyploca ridens* F. (Thyatiridae) and *Orthosia gracilis* Schiff. (Noctuidae) were numerous and *Phlogophora meticulosa* L. (Noctuidae) was, in his opinion, a month early.

At Arkley, Herts, Mr. T. G. HOWARTH said the trap contained rather fewer moths; his first *Phlogophora meticulosa* L. had occurred the night before last (26th/27th) and *Celerio livornica* Esp. (Sphingidae) had entered the trap last night.

A paper on "Variation in *Euchloë cardamines* L." was read by H. B. WILLIAMS, Q.C., LL.D., F.R.E.S., and promoted a lengthy and interesting discussion (see *Transactions*, p. 82).

11th APRIL 1957.

The PRESIDENT in the Chair.

Miss D. J. Jackson, F.R.E.S., was declared elected a member.

EXHIBITS.

The PRESIDENT—Living examples and photographs of *Ptinus hirtellus* Sturm. (Col. Ptinidae) comprising diploid males and females, and triploid females. He read the following note:—The triploid females are a parthenogenetic form which breeds by gynogenesis after mating with normal males.

Mr. F. D. BUCK—Four species of the Tenebrionid genus *Tribolium* (Col.) found in Britain. *T. confusum* J. du Val., *T. castaneum* (Herbst), *T. destructor* Uytten and *T. anaphe* Hinton, accompanied by sketches illustrating the differences between the species based on Hinton's key (1948, *Bull. Ent. Research*, **39** (1): 26-30). He read the following note:—The two first named species are both to be found in Fowler (1891, *Col. Brit. Is., London*, **5**: 20-21) and in Joy (1932, *Pract. Handb. Brit. Beetles*, London, **1**: 315) and it is difficult to understand why Kloet and Hincks (1946, *Check List of Brit. Insects*, Stockport, p. 198) have not included *T. confusum*. Brett (1956, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 17) records the species as one of the more common introductions. *T. destructor* and *T. anaphe*, he says, are scarcer introductions. The former, however, is included in Kloet and Hincks' Check List (*loc. cit.*) along with *T. madens* (Charp.) a species of which I have no records from Britain. *T. anaphe* was first recorded in Britain by Williams and Brett (1952, *Ent. mon. Mag.*, **88**: 19).

Mr. S. WAKELY—Some small lepidopterous larvae taken in catkins at Effingham, Surrey, 7.iv.57, which he believed to be *Cirrhia ocellaris* Borkh. (Noctuidae), though he said they might be *Agrochola circellaris* Hufn. (Noctuidae).

Mr. A. W. GOULD—(1) A minute book, 1852-1857, of The Greenwich Natural History Society, a forerunner of The West Kent Scientific Society. (2) *A Centenary Retrospect*, published by The West Kent Scientific Society. The list of Presidents included H. T. Stainton, F.R.S., and R. Maclachlan, F.R.S.

Mr. A. E. GARDNER—A specimen of *Oedipoda miniata* (Pallas) (*gratiosa* Forst.) (Saltatoria, Acrididae) taken in 1956 by Mr. W. H. Reay, Mafraq, Jordan.

COMMUNICATIONS.

Until the recent cold snap in the weather it seemed that the Lepidoptera this season were some four weeks in advance of normal.

Odontosia carmelita Esp. (Notodontidae) had occurred on 31st March and again on 3rd April, *Notodonta ziczac* L. (Notodontidae) and *Colocasia coryli* L. (Noctuidae) the previous week, and *Ematurga atomaria* L. (Geometridae) and *Euchloë cardamines* L. (Pieridae) were out. *Archiearis* (*Brephos*) *notha* Hb. (Monocteniidae) was on the wing, *Orthosia populeti* F. (Noctuidae) was already getting worn and *Selenia lunaria* Schiff. (Geometridae) had been seen on the last day of March.

Heliothis peltigera Schiff. (Noctuidae) had been taken the previous week-end and was the pale form. It was suggested that this might have migrated from Spain or from an adjacent part of Europe.

On the South Coast the catch was still very low compared with the inland localities.

Mr. J. O. T. Howard reported on Aviemore, Inv., where he had spent the previous week. He said the weather was good, the wind was mainly from the south, and the trap was producing 300 to 400 moths every night. The season was not so early as in the south, *Brachionycha nubeculosa* Esp. (Noctuidae) and *Achlya flavicornis* L. (Thyatiridae) were nearly over, but *Orthosia gracilis* Schiff. (Noctuidae) was not out at all. *Lycia hirtaria* Clerck (Geometridae) started quietly but by the end of the week was in some numbers. *Ectropis bistortata* Goeze (Geometridae) was out and so was *Archiearis* (*Brephos*) *parthenias* L. (Monocteniidae), *Orthosia gothica* L. (Noctuidae) was improving, and included the *gothicina* H.S. form. *Phragmatobia fuliginosa* L. (Arctiidae) was spun up in the tops of heather.

Mr. Dennis Leston said the aquatic Hemiptera, like the Lepidoptera, were approximately four to five weeks ahead of 1953 and 1954.

A paper was read by Dr. G. J. Dowrick on "Cells and Chromosomes" which was illustrated by the lantern.

25th APRIL 1957.

The President in the Chair.

EXHIBITS.

The President—*Typhaeus typhoeoides* Fairm. (Col. Geotrupidae) male from Algeria with a pair of *T. typhoeus* (L.) from Britain for comparison.

Mr. A. W. Gould—Living examples of *Meloë proscarabaeus* L. (Col. Meloidae) taken on a sunny bank in a chalk-pit on the North Downs near Wrotham, Kent, 19.iv.57.

Miss F. A. Ashby—Two live specimens of *Orchesia undulata* Kraatz (Col. Melandryidae) taken in fungus from a fallen beech trunk on the North Downs, near Trottiscliffe, Kent, 19.iv.57.

Mr. C. N. Hawkins—A male specimen of *Platystomos albinus* (L.) (Col. Platystomidae) found by Mr. H. J. Brush on the stem of a small aspen during the Society's field meeting at Oxshott, 20.iv.57.

COMMUNICATIONS.

Mr. L. Parmenter gave a talk on "Flies and Flowers".

9th MAY 1957.

An informal meeting was held in the library in the form of a Conversazione.

23rd MAY 1957.

The President in the Chair.

The death of Mr. L. C. Bushby was announced.

EXHIBITS.

The President—A living nymph of the dragonfly *Aeshna grandis* (L.) (Aeshnidae).

Mr. S. Wakely—Two examples of *Pammene aurantiana* Staud. (Lep. Eucosmidae), a recent addition to the British List. The specimens were taken at Rodborough Common, Glos., 31.vi.56 and Studland, Dorset, 14.viii.56 by Mr. L. Price of Stroud, Glos. Mr. J. D. Bradley of the British Museum (Nat. Hist.) had determined the insects and had said that two more had been taken at Dover, Kent.

Mr. F. D. Buck—A short series of *Autalia longicornis* Scheer. (Col. Staphylinidae) taken in rotting *Polyporus* at Box Hill, Surrey, 14.iv.57.

Mr. H. W. Spreadbury—(1) A fine example of dead beech stained green with the mycelium of the discomycetous fungus *Chlorosplenium aeruginosum* (Oeder ex Fr.) de Notaris, from Box Hill, Surrey. (2) A very small *Mimas tiliae* L. (Lep. Sphingidae) bred from a larva found crawling up an oak bole in Banstead Woods, Surrey. (3) Two living females of the Tipulid *Ctenophora pectinicornis* (L.) (Diptera) bred from larvae in rotten beech, Ranmore, Surrey.

Mr. T. R. Eagles for Mr. H. G. Tunstall—A sprig of *Cupressus macrocarpa* Gord. (Cupressaceae) with cones.

Mr. I. Lorimer for Mr. T. G. Howarth—Flower heads of the Cowslip, *Primula veris* L. (Primulaceae) from Mr. Howarth's garden, showing examples of moderate and extreme fasciation, with a normal flower head for comparison. It seemed possible that this could be due to the plants having been sprayed with alum to repel birds.

COMMUNICATIONS.

Mr. Lorimer's exhibit caused considerable discussion during which recent cases of fasciation were cited occurring in Delphinium, Purple Toadflax, Iris and Cowslip. Mr. Eagles gave details of an abnormality in Iris where the inflorescence consisted of four falls and two standards instead of the usual three falls and three standards. He said that sometimes these variations from normal give a clue to botanical development. An instance was given by Mr. Sperring of a Purple Hellebore reverting to green.

Mr. L. T. **Ford** said he had received from the West Country a larva feeding on *Mesembryanthemum*, the imago of which had proved to be *Austrotortrix postvittana* Walk. (Lep., Tortricidae).

Several members commented on the fact that for the past three or four weeks there was a dearth of normally common months.

A most interesting talk, "The photography of Lepidoptera" was given by Mr. W. J. **Akester**, F.R.P.S., which he illustrated with excellent coloured slides. The camera enthusiasts engaged Mr. Akester in a lively discussion involving most aspects of the subject.

13th JUNE 1957.

The **President** in the Chair.

The death was announced of Mr. A. V. Hedges.

Mr. E. G. Murray was declared elected a member.

EXHIBITS.

The **President**—A series of *Carabus violaceus* L. (Col. Carabidae) which included the typical form from Germany, var. *sollicitans* Hart. from Gt. Britain, s.sp. *purpurascens* from France and the Alpine s.sp. *germari* Sturm.

Mr. F. D. **Buck**—Three species of Coleoptera taken in sedge litter at Wood Walton Fen, Hunts, 19.v.57. *Panagaeus crux-major* (L.) and *Oodes helopioides* (F.) (Carabidae) and *Agathidium laevigatum* Er. (Leiodidae).

Mr. R. **Eldon Ellison**—The following Lepidoptera: two aberrations of *Plusia gamma* L. (Plusiidae) with the "Y" partly obsolete; a melanic example of *Dasychira pudibunda* L. (Lymantriidae); and an *Eilema* thought to be *caniola* Hb. (Arctiidae). All from Eastbourne, Sussex.

Mr. R. M. **Mere**- A male *Pyrausta perlucidalis* Hb. (Lep. Pyralidae) new to Britain. He read the following note: On 24th June 1951 while collecting in Eastern England, I caught two moths flying at dusk. They were misidentified, and it is only recently, thanks to Mr. Bradley and Mr. Martin of the British Museum, that their true identity has been determined. They are male specimens of *Pyrausta perlucidalis* Hb., a species new to the British Isles. On the Continent the foodplant is Marsh Thistle. There were plenty of thistles where the insect was taken, but I fancy not the normal Continental foodplant, which is said to be *Cirsium oleraceum* (L.) Scop. It appears that on the Continent the insect is found locally in Northern France, Austria, Dalmatia, and in one locality in Belgium, and flies in May and June. It seems to me likely that the moth is breeding here, and I hope to revisit the area in a few days time to see if it can be found. I have brought with me one of the two specimens taken. The other is in the collection at South

Kensington. A fuller account will appear in the next issue of the *Entomologist's Gazette* (**8**: 162-166) with drawings of the genetalia and one of the insect. In appearance the moth might be confused with *P. fuscalis* Schiff., but *P. perlucidalis* has a characteristic conspicuous discal mark.

Mr. J. L. Henderson—Coleoptera taken at the field meeting on 8th June at Orleston Woods, Ham Street, Kent. *Cantharis figurata* Man. (Cantharidae), *Bruchidius fasciatus* (Ol.) (*cisti* (Payk.)) (Bruchidae), *Chalcoides nitidula* (L.) (Chrysomelidae), *Lagria atripes* (Muls & Guill.) (Lagriidae), and *Byctiscus populi* (L.), *Deporaus mannerheimi* Hum., *Caenorrhinus tomentosus* (Gyll.) and *Polydrusus flavipes* (Deg.) (Curculionidae). With the exception of the Bruchid which was on Broom (*Sarrothamnus scoparius* (L.) Wimmer), they were all beaten from aspen (*Populus tremula* L.).

Mr. T. J. Honeybourne—The following living lepidopterous larvae: *Rhodinia fugax* Butler and *Dictyoploca japonica* Butler from Japan; *Epicnaptera ilicifolia* L. from Weiden; *Leucodonta bicoloria* Schiff. from the Black Forest, Germany; and *Xylena vetusta* Hb. from Aviemore, Inverness-shire. The last named having a deformity on the sixth segment.

Mr. Dennis Leston—Several living larvae of *Rhodinia fugax* Butler, he commented on the squeaking mechanism.

Mr. A. E. Gardner—(1) A living specimen of the Orthopteron *Dericorys millièrei* Bonnet & Finot from Tobruk, N. Africa. (2) Five species of Orthoptera from Tenerife, Canary Islands. (3) The New Zealand vegetable caterpillar and an imago of *Hepialus virescens* Doubl., of which it was thought to be the larva; though it has been suggested that it is the larva of *Porinia dinodes* Meyr. The fungus on the caterpillar was *Cordiceps robertsii* Berk.

ANNOUNCEMENTS.

The President drew attention to the award of the K.C.V.O. to Major-General G. F. Johnson, C.B., C.B.E., D.S.O., in the Birthday Honours List.

The Librarian announced the acquisition of *A Revision of the European species of the generic group Crambus* by Stanislaus Bleszynski and that the books left to the Society by Dr. E. A. Cockayne had now been received. He paid tribute to the considerable amount of assistance Mr. F. T. Vallins had rendered in this respect.

COMMUNICATIONS.

Mr. C. N. Hawkins said that the *Iris pseudacorus* L. plant which he had reported in 1955 (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 7) producing flower spikes with a double bend, had this year produced a single spike only, which had again exhibited this abnormality.

He also commented on the sudden appearance of swarms of Green Aphids, which the President said had also occurred at Slough. Mr. Leston stated that some economic entomologists gave as the explanation the earlier warm weather, which had brought the over-wintering aphids out earlier than usual and had resulted in an extra generation or two.

Field meeting reports were given for Ham Street, Chobham and Sevenoaks.

27th JUNE 1957.

Mr. J. L. Henderson in the Chair.

EXHIBITS.

Mr. F. D. Buck—(1) Specimens of *Blethisa multipunctata* (L.) and a series of *Bembidion fumigatum* (Dufts.) (Col. Carabidae) taken at Hickling Broad, Norfolk, 1.vi.57. (2) A specimen sheet of styles of a new form of mechanical tint suitable for use in black and white drawings, together with a piece of the actual material.

Mr. R. Eldon Ellison—Living larvae of *Ennomos autumnaria* Werneb. (Lep. Geometridae).

Mr. Dennis Leston—The relevant drawer from the Society's collection of Hemiptera to support his paper.

Mr. R. W. J. Uffen—Living examples of *Dicranomyia dumetorum* Meig (Dipt. Tipulidae) bred from rotten beech wood found at Mickleham, Surrey, in October 1956.

Mr. C. N. Hawkins—A dark example of *Apamea epomidion* Haw. (Lep. Noctuidae), and a specimen of *Aegeria myopaeformis* Bork. (Lep. Sesiidae) both from Wimbledon recently.

COMMUNICATIONS.

Several members agreed that there were remarkably few Butterflies about; in the Eastbourne area of Sussex the only Butterfly at all common was *Coenonympha pamphilus* L.

Dr. C. G. M. de Worms thought things had improved since the middle of the month and said that the 18th had been a very good night with light, some 90 species appearing in approximately two hours, which included many *Stauropus fagi* L. *Mythimna turca* L. had appeared on the 26th and several hawk moths including *Mimas tiliae* L., *Deilephila porcellus* L. and *Hyloicus pinastri* L. had been seen.

The Librarian announced that three new works had been added to the library. (1) The second edition of *Bibliography of the Key Works for the identification of the British Fauna and Flora*, London, 1953. (2) *Insects close up*, a pictorial guide for the photographer and collector, Edward S. Ross, Berkeley & Los Angeles, 1953. (3) *A Silkworm Rearer's Handbook*, W. B. Crotch, London, 1956.

A report of the field meeting at Horsell was given. Mr. Dennis Leston, F.Z.S., F.R.E.S., read a paper on "The Biology of British Shield Bugs (Hem. Pentatomoidea)".

11th JULY 1957.

The President in the Chair.

Mr. Dennis J. B. Brush was elected a member.

EXHIBITS.

The President—(1) *Carabus* (*Procrustes*) *coriaceus* L. (Col. Carabidae), a living female from Bled, Slovenia. (2) *Trinophylum cribratum* Bates (Col. Cerambycidae), a living example bred ab ovo from Feltham, Middx., stock. (3) A living scorpion from Opatija, Slovenia.

Mr. T. R. Eagles—(1) Hymenopterous parasites bred from a batch of eggs of *Dasychira pudibunda* L. (Lep. Lymantriidae) from Horsell, Surrey. (2) A seed capsule of *Cyclamen neapolitanum* Ten.

Mr. A. E. Gardner—Two male specimens of the mantis *Blepharopsis mendica* (F.) (Dictyoptera Mantoidea) taken by Mr. W. H. Reay at Tobruk, Libya, in June 1957.

Dr. J. L. Newton—Cerambycidae found in Thorndean Wood, Kent, in June, 1957: *Stenocorus meridianus* L., *Leptura livida* F., *Strangalia maculata* (Poda), *S. melanura* (L.), *Alosterna tabacicola* (Deg.), *Grammoptera ruficornis* (F.), *Leiopus nebulosus* (L.), and *Mesosa nebulosa* (F.).

COMMUNICATIONS.

Several members reported having observed migrant Lepidoptera recently: *Macroglossum stellatarum* L. (Sphingidae) in Kent and Cornwall; *Laphygma exigua* (Noctuidae) in the West Country; *Heliothis peltigera* Schiff. (Noctuidae) at Weybridge, Surrey, and in Cornwall; *Plusia ni* Hb. (Plusiidae) in N. Cornwall, *Rhodometra sacraria* L. (Geometridae), in Kent.

Mr. R. Eldon Ellison gave reassuring news of the status of *Maculinea arion* L. (Lycaenidae) in Cornwall, and stated that he had taken *Procris globulariae* Hb. (Zygaenidae) in his light trap at Eastbourne, Sussex.

Mr. L. T. Ford reported that *Austrotortrix postvittana* Walk. (Tortricidae) was abundant in the larval stage at Falmouth, Cornwall.

Mr. R. M. Mere stated that on 22nd June he had taken five examples of the new Pyrale, *Pyrausta perlucidalis* Hb., at Wood Walton Fen, Hunts.

25th JULY 1957.

The President in the Chair.

The death was announced of Mr. D. Watson.

EXHIBITS.

The President—Two species of Coleoptera from an old oak in Langley Park, Bucks., 24.vii.57: *Dorcatoma* sp. (Anobiidae) and *Mycetophagus piceus* (F.) (Mycetophagidae), both were shown alive.

Mr. R. Eldon Ellison—The following Lepidoptera from Eastbourne, Sussex. (1) An aberration of *Arctia villica* L. (Arctiidae) with slightly confluent spots. (2) *Ellopia fasciaria* L. f. *intermediaria* Gmpbg. (Geometridae) with green hindwings. (3) *Arenostola extrema* Hb. The last two named were new to the district and, it was suggested, may be migrants from the Continent.

Mr. W. H. Spreadbury—The fungus *Epichloe typhina* (Tul.) on the stems of *Holcus mollis* L.; some of the fungus with the larvae of *Egle radicum* (L.) (*Anthomyia spreta* Meign.) (Dipt., Muscidae). He read the following note: This fungus attacks a number of wild grasses, but according to Massee is not known to attack cereal crops. Hay containing the fungus can be injurious to horses. The fly evidently feeds on no other fungus.

COMMUNICATIONS.

The Librarian announced that he had purchased a second copy of *Flora of the British Isles* by Clapham, Tutin and Warburg. This is still the first edition, but is the 1957 impression, reprinted with corrections to the 1952 impression.

Mr. A. H. Sperring, referring to Mr. Ellison's exhibit, said that he had bred *Ellopia fasciaria* L. from a Hampshire wood many years ago, and that if bred on a large scale a faint green tinge will sometimes appear.

Members in general reported very few Lepidoptera of interest and though sometimes the trap contained a large number of moths they were almost entirely the very commonest species.

Mr. Ellison commented on a letter he had received from Dr. C. G. M. de Worms who had written from Victoria Falls, N. Rhodesia.

Reports were given of the Bookham and Hurtmore field meetings.

Mr. J. Quinlan gave an account of the British Museum (Nat. Hist.) - Royal Horticultural Society expedition to Nepal in 1954, and showed a colour film of the trip.

8th AUGUST 1957.

The President in the Chair.

EXHIBITS.

The President—(1) Two living examples of the introduced Carabid beetle *Somotrichus unifasciatus* (Dej.) taken recently on Brazil nuts at Hull, Yorks. (2) A pressed specimen of the more or less introduced plant *Potentilla recta* L. from Hurn, Hants. (3) An amusing advertisement appearing in an old issue of the *Entomologischer Anzeiger*.

Mr. R. Eldon Ellison—Series of *Cryphia muralis* (Forst.) (Lep. Noctuiidae) from Eastbourne, Sussex and from Bristol, Glos., showing an apparent racial difference. Also *C. impar* Warren from Glos. and a similar example from Eastbourne.

Mr. Dennis Leston—A male and a female *Micracanthia marginalis* (Fall.) s.sp. *imitator* Linnavuori (Hem. Saldidae) from Esher Common, Surrey, 1 and 3.viii.57. These captures, and some made by

Woodroffe near Chobham in July 1957, are the first in Surrey for over 65 years. Dorset is the only other locality in which the bug has been taken this century (by Harwood, 1942).

Mr. F. D. Buck—Examples of *Dorcatoma serra* Panz. (Col. Anobiidae) together with parasites *Diospilus ephippium* (Nees) (Hym. Braconidae) bred from fungus taken at Swainsthorpe, Norfolk.

Mr. R. M. Payne—Specimens of the local grasshopper *Stenobothrus lineatus* (Panz.) from Langley Park, Bucks.

Mr. T. G. Howarth—Two species of Coleoptera taken in a mercury vapour light trap at Arkley, Herts., three or four nights previously; they were *Bradycellus harpalinus* (Serv.) (Carabidae) and *Aphodius rufescens* F. (Scarabaeidae).

COMMUNICATIONS.

Many members thought it to be a bad year for Lepidoptera, but *Lithosia quadra* L. (Arctiidae) was reported to be common in Cornwall. *Parascotia fuliginaria* L. (Plusiidae) had occurred in a light trap at Feltham, Middx., some two weeks earlier. On the night of 19th/20th July a big influx of *Plusia gamma* L. (Plusiidae) had taken place. At Dungeness, Kent, on 30th July two examples of *Thalera fimbrialis* Scop. (Geometridae) had been taken in weather conditions that had been very windy and very wet.

The cockroach *Ectobius panzeri* Steph. (Dictyoptera) was said to have been very common on the flowers of *Senecio jacobaea* L. at Hurn, Hants. Both males and females were present, together with larvae. A single example of *E. lividus* (F.) was also seen but no *E. lapponicus* (L.).

22nd AUGUST 1957.

The President in the Chair.

The death was announced of Mr. P. Harwood, F.R.E.S.

Dr. A. M. L. Campbell and Mr. H. G. Lydgate-Bell were declared elected members.

EXHIBITS.

The President—(1) Specimens of *Pediacus depressus* (Herbst) (Col., Cucujidae) with the more widely distributed *P. dermestoides* (F.) for comparison. (2) Living *Cetonia aurata* (L.) (Col. Scarabaeidae), reared from larvae taken at Fontainebleau, France, together with larvae in spirit.

Mr. F. D. Buck—A specimen of *Harmonia quadripunctata* (Pont.) beaten from oak at Wood Walton Fen, Hunts., 11.viii.57, by Dr. J. L. Newton. He drew attention to the light underside of this beetle with the light yellow metasternum and epimera. Dr. Newton was presenting the specimen to the Society.

Mr. R. M. Mere—(1) A short series of *Agrotis puta* Hb. (Lep. Noctuidae) comprising the race from the Scilly Isles and, for comparison, the normal race. (2) A living female *Cosymbia puppillaria* Hb. (Lep. Geometridae) bred from the egg, F2 generation.

Dr. J. L. Newton—A series of *Chrysolina graminis* (L.) from Wood Walton Fen, Hunts., 11.viii.57. The series contained a very dark aberration.

Mr. T. R. Eagles—Seeds of *Erodium manescavi* Coss. (Geraniaceae). He drew attention to the fact that the beak of the carpel was twisted spirally and remained attached to the seed. This was characteristic of the genus *Erodium* and distinguished it from *Geranium*, where the beak of the carpel rolls upwards and releases the seed. He also remarked that the movement caused by alternate wetting and drying of the "awn" enabled the seed to crawl over the ground and become buried in cracks in the soil. The backwardly directed hairs prevented it from coming out of the soil once it had made its way in.

Mr. W. E. Minnion—A living example of a striking spider, *Argiope bruennichi* Scop., from Ballard Down, Dorset.

COMMUNICATIONS.

Mr. R. Eldon Ellison commenting on the *Arenostola extrema* Hb. (Lep. Noctuidae) which he exhibited on 25th July (p. 12), said the foodplant of the species, *Calamagrostis epigejos* (L.) Roth (Gramineae), occurred as a rarity in Sussex. He now thought the moth may have bred near Eastbourne, and not be a migrant as he had at first suggested.

A talk "Crocs and Caddis", was given by Dr. N. E. Hickin, F.R.E.S., which he illustrated with diagrams and Kodachromes.

12th SEPTEMBER 1957.

The President in the Chair.

The death was announced of Mr. A. Smith.

Mr. H. N. Moon was declared elected a member.

EXHIBITS.

The President—Two examples of *Cicindela gallica* Brullé (Col., Cicindelidae), one of the true alpine members of the genus, taken at Lotschental, Switzerland, by Mr. F. T. Vallins.

Mr. E. G. Murray—A living *Melitaea athalia* Rott. (Lep., Nymphalidae) bred from the egg. The insect was part of a brood raised in a green house, of which two larvae pupated early. One of the pupae unfortunately shrivelled up, the other producing the exhibited specimen.

Mr. S. Wakely—A case of Lepidoptera taken at Dungeness, Kent, between 22.vi.57 and 6.vii.57, which included *Celama trituberculatus* Bosc. (Nolidae), one of two taken at mercury vapour light; *Euzophera marmorea* Haw. (Crambidae), a dull form which seems peculiar to the district; *Cynaeda dentalis* Schiff. (Pyralidae), a tiny example about 16 mm. across the wings, a normal sized example (25 mm.) was shown for comparison; *Crambus salinellus* Tutt (Crambidae), possibly a new county record; a series of *Clepsis consimilana* Hb. (*Tortrix unifasciana*

Dup.) (Tortricidae), found in large numbers amongst gorse, they were slightly smaller than normal *C. consimilana* of which the only recorded foodplant is privet; two specimens of *Depressaria badiella* Hb. (Oecophoridae), of which one had striking orange palpi. There is a reference fitting this example of *D. badiella* by Meyrick (1927, *British Lepidoptera*, London, p. 682) which reads:—"A specimen from Deal, mentioned as *Depressaria aurantiella* Tutt, but not described, compared to *D. badiella* but darker, with striking orange palpi, apparently cannot belong to this genus, and is not known to me." Other species shown which were taken during the same period were: *Nola albula* (Nolidae) Schiff., and *Earias clorana* L. (Hylophilidae); *Eilema pygmaeola* Doubl. (Arctiidae); *Aplasta ononaria* Fuessl. (Monocteniidae); *Eupithecia millefoliata* Rossl. (Geometridae); *Calophasia lunula* Hufn. bred in August from larvae found, and *Hadena albimacula* Borkh. (Noctuidae); *Dioryctria hostilis* Steph., *Nymphula stratiotata* L., *Schoenobius gigantellus* Schiff., *Perinephela fuscalis* Schiff., *Endotricha flammealis* Schiff. and *Synaphe angustalis* Schiff. (Pyralidae); *Euzophera neophanes* Durr. and *Platytes alpinellus* Hb. (Crambidae); *Euxanthis zoegana* L. and *E. hamana* L. (Phaloniidae) a well marked variety; *Endothenia antiquana* Hb., *Argyroploce purpurana* Haw. and *Laspeyresia funebrana* Treits. (Eucosmidae); *Aristotelia lucidella* Steph., *A. palustrella* Dougl., *Gelechia suppliella* Wals., *Phthorimaea leucomelanella* Zell., *Sophronia semicostella* Hb. and *Brachmia gerronella* Zell. (Gelechiidae); *Batia lambdella* Don. (Oecophoridae); *Ethmia bipunctella* F. (Hyponomeutidae); *Monopis crocicapitella* Clem. (Tineidae).

Mr. K. A. Spencer—Two probably new species of the dipterous family Agromyzidae from Brazil near São Paulo, together with their mines in two different species of *Solanum* (Solanaceae), which illustrated the quite distinct mines where the imagines are morphologically scarcely separable.

Mr. R. M. Mere—Lepidoptera from the Scilly Isles: *Agrotis trux* Hb. s.sp. *lunigera* Steph. (Noctuidae), *Spilosoma lutea* Hufn. and *S. lubricipeda* L. (Arctiidae).

Mr. T. R. Eagles—(1) An illustration of the jellyfish known as the Portuguese Man-o'-War. (2) A bug from Yugoslavia which he thought to be *Lygus saxatilis* (Hem., Lygaeidae).

Mr. N. G. G. Webb—Dwarf Lepidoptera; *Pieris napi* L. female and *P. rapae* L. male and female (Pieridae), also *Eumenis semele* L. female (Satyridae). Normal specimens were also shown for comparison.

Mr. W. E. Minnion—The following Lepidoptera: (1) Three examples of *Arctia caja* L. (Arctiidae) bred from a swarm of larvae from the Scilly Isles; one typical, one with pale hindwings, and one with yellow hindwings and body. (2) Two dusky forms of *Selenia bilunaria* Esp. (Geometridae). (3) An example of *Aglais urticae* L. (Nymphalidae) with a large area of cream colouring.

Mr. M. G. Morris—Pupae of *Amblyptilia acanthodactyla* Hb. (Lep., Pterophoridae) taken as larvae feeding on *Stachys* at the Cosford Mill, Surrey, field meeting, 25.viii.57. Also set examples of this species and of *A. punctidactyla* Haw. the other British representative of the genus. A specimen of *Hypercallia citrinalis* L. (*christiernana* L.) (Lep., Oecophoridae) taken at the Wrotham, Kent, 23.vi.57.

Mr. A. E. Gardner—(1) Lepidoptera: a male and female *Thalera fimbrialis* (Scop.) (Geometridae) from Dungeness, Kent, 27.vii.57, and three preserved larvae of *Cosymbia puppillaria* Hb. (Geometridae) prepared by Mr. T. Hammond and presented to the Society by Messrs. T. Hammond, G. Haggett and R. M. Mere. Odonata: an adult male and semi-adult female *Sympetrum nigrescens* Lucas (Libellulidae) taken by Mr. A. McCrae, from Kerrisdale, W. Ross, 15.viii.57, and a female *Anax tristis* Hagen (Aeshnidae), bred by Dr. P. S. Corbett, 2.viii.55 from Jinja, Uganda.

Mr. F. D. Buck—Two living Silphid larvae taken at Croyde Bay, N. Devon, probably *Ablattaria laevigata* (F.) (Col.).

ANNOUNCEMENTS.

The librarian reported that a copy of Dr. John Ramsbottom's book, *Mushrooms and Toadstools*, New Naturalist, No. 7, had recently been purchased.

COMMUNICATIONS.

A member reported *Agrotis trux* Hb. s.sp. *lunigera* Steph. was abundant in S. Cornwall.

A discussion arose out of Mr. Mere's exhibit concerning effects causing subspecies.

Mr. S. N. A. Jacobs said he had bred two examples of *Laspeyresia molesta* Busck, (Lep., Eucosmidae) from imported apricots.

26th SEPTEMBER 1957.

The President in the Chair.

Mr. Martin Pring was declared elected a member.

EXHIBITS.

The President—The larvae of four species of Coleoptera preserved in spirit and taken in the West Country during September: *Broscus cephalotes* (L.) and *Abax parallelepipedus* (Pill. & Mit.) (Carabidae), *Nacerdes melanura* (L.) (Oedemeridae) and *Cylindronotus pallidus* (Curt.) (Tenebrionidae).

Mr. K. A. Spencer—Specimens of *Liriomyza brassicae* (Riley) (Dipt. Agromyzidae) from Dakar, W. Africa, 2.viii.57.

Mr. R. Eldon Ellison—A series of *Agrotis trux* Hb. s.sp. *lunigera* Steph. (Lep. Noctuidae) from Sussex, Cornwall and Ireland showing racial differences.

Mr. F. Knight—A female *Lampides boeticus* L. (Lep. *Lycaenidae*) taken at Folkestone, Kent, 8.ix.57.

Mr. R. M. Payne—Specimens of the Cricket *Mogoplistes squamiger* Fischer taken at Weymouth, Dorset, 6.ix.57.

Lt.-Col. W. B. L. Manley—A half-grown larva of *Lophopteryx cucullina* Schiff. (Lep. Notodontidae). The parent was taken in a mercury vapour trap at Otford, Kent, where the species occurs regularly.

Mr. S. Wakely—A series of *Isophrictis tanacetella* Schr. (Lep. Gelechiidae) bred from the seedheads of *Tanacetum vulgare* L. (Tansy) collected near Maidstone, Kent, in May this year. The moth had been discovered there by Lt.-Col. W. B. L. Manley the previous August (1956). The last record that can be traced of this species is by E. R. Bankes (1907, *Ent. mon. Mag.*, **43**: 137) who writes that three examples of this rare species—then called *Paltodora striatella* Hb.—were taken in E. Devon during August 1906. Also shown was a specimen of *Choreutis myllerana* F. (Lep. Choreutidae) taken at Ham Street, Kent, 8.vii.57, on the occasion of the Challock field meeting; and a specimen of *C. punctosa* Haw. bred from a larva found at Hog Wood, Sussex, 28.viii.57, on the occasion of the Chiddingfold field meeting.

Mr. B. Goater—Specimens of *Gortyna* (*Hydraecia*) *petasitis* Doubl. from Hants. and the London area taken during August this year.

Mr. T. R. Eagles—(1) Some hundreds of dead imagines of the fly *Thaumatomyia notata* (Meig.). A swarm had entered his house at Enfield, Middx., on 19th September and were almost entirely confined to a south facing bedroom. In previous years they had gone to the same room. Before spraying with insecticide, a tray, measuring 1 ft. × 1½ ft., was placed on the floor, on which 600 flies were counted. From this it was estimated that there were in all about 50,000 flies in the room. On the 21st about 3,000 more came, and on the 23rd about 1,000 more. (2) The bracket fungus *Ganoderma lucidum* (Leyss.) Karst. found on Hornbeam in Epping Forest, Essex. This fungus is generally found on Hornbeam and thus is more often found in Epping Forest than elsewhere because the tree is abundant there.

Mr. C. N. Hawkins—Stems of Dahlia exhibiting fasciation in the seedheads.

COMMUNICATIONS.

Dr. C. G. M. de Worms, commenting on the *Gortyna* (*Hydraecia*) *petasitis* exhibited, said he had seen several in the Cotswolds about 11 p.m. at night some 20 years ago. The fly which Mr. Eagles had shown, he said, had been found in large numbers by Lord Cranbrook on a piece of ground in Suffolk.

Lepidopterous migrants reported from the Eastbourne area of Sussex included both *Herse convolvuli* L. (Sphingidae) and *Palpita unionalis* Hb. (Pyralidae) which occurred in a mercury vapour trap on 20th of the month and an outburst of *Plusia gamma* L. (Plusiidae) which had recently taken place. Comment was made on the number of Tipulids (Dipt.) in the same area.

Mr. W. E. Minnion showed a number of colour photographs and discussed each subject with the technical details of production.

Preliminary reports of the Benfleet and Holmbury field meetings were given.

10th OCTOBER 1957.

The President in the Chair.

The death was announced of Mr. J. Fincham Turner.

Mr. Junichi Yano was declared elected a member.

EXHIBITS.

Dr. C. G. M. de Worms—Larvae of *Eupithecia pimpinellata* Hb. (Lep. Geometridae) from Salisbury, Wilts., October 1957.

Mr. Robin Mere—Lepidoptera from the Scilly Isles as follows: *Crocidosema plebeiana* Zell. (Eucosmidae), *Noctua* (*Triphaena*) *comes* Hb. *Eumichtis lichenea* Hb., and *Caradrina ambigua* Schiff. (Noctuidae).

Mr. S. Wakely—A specimen of a tortricid moth new to Britain, *Laspeyresia prunivorana* Rag. In Lhomme's Catalogue the name *prunivorana* Ragonot (1879) is sunk under *lobarzewskii* Nowicki (1860), but at the moment there is some doubt as to whether the two names refer to the same species. The specimen was taken at Dungeness, Kent, at mercury vapour light in early July. The larva is said to feed on *Prunus* and *Cerasus*, so on a foodplant basis it could become established. Also shown were living larvae of *Thiotricha subocellea* Steph., a gelechiid moth which lives in a portable case on the flowers and seeds of *Origanum vulgare* L., and a larva of *Coleophora potentillae* Staint. (Coleophoridae) on *Poterium sanguisorba* L.—both species having been taken at the recent field meeting at Chipstead, Surrey.

Mr. A. E. Gardner—A male example of *Anechura bipunctata* (F.) (Derm., Forficulidae) taken on 25.vii.57 at Zermatt, Switzerland, at 2,500 ft., by Mr. F. T. Vallins. This insect is a mountain species found at great elevations, even near glaciers.

COMMUNICATIONS.

The Librarian announced that Mr. T. G. Howarth has presented to the library a copy of the latter's paper *A revision of the genus Neozephyrus Sibatani & Ito (Lep. Lycaenidae)*. He also said that aided by a donation from one of the members, the Society had purchased a copy of *The Lepidoptera of Iraq* by E. P. Wiltshire.

Mr. R. Eldon Ellison reported taking in his trap at Eastbourne, Sussex, about a dozen examples of the moth hitherto known as *Lithophane lapidea* Hb. (Noctuidae), but which is now thought to be *L. leautieri* Boisd. Dr. C. G. M. de Worms said he had heard from Mr. I. R. P. Heslop that *Colias croceus* Fourc. (Lep. Pieridae) and *Vanessa cardui* L. (Lep. Nymphalidae) have been abundant at Burnham-on-Sea, Somerset, this year. He added that he had taken two examples of *Dasycampa rubiginea* Schiff. (Lep. Noctuidae) recently in his trap at

Woking, Surrey. Mr. **Mere** reported a large *Herse convolvuli* L. (Lep. Sphingidae) in the Scilly Isles three weeks ago. *Cosymbia puppillaria* Hb. (Lep. Geometridae) had occurred there on several occasions and one larva had been taken on *Quercus ilex* L. (Holm oak). Mr. **Wakely** said he had bred twelve pupae of *C. puppillaria* from the material supplied by Mr. Mere from his first visit to the Scillies, which were now emerging, seven being out already.

A discussion took place on the feeding habits, food plant and emergence of the species.

Mr. W. H. **Spreadbury** in opening the discussion on an exhibition of fungi laid out in the library said that, though apparently a poor year for fungi, there were a great many species. Notable were the collections made in Banstead Woods, Surrey, by Mr. F. T. Vallins and in Epping Forest, Essex, by Mr. T. R. Eagles.

26th OCTOBER 1957.

THE ANNUAL EXHIBITION—RECORD OF EXHIBITS

Mr. B. **Alfieri** (visitor)—A cutting from *The British Journal of Photography* showing the life history of *Nymphalis antiopa* L., photographed by himself at the Butterfly Farm, Bexley, Kent, by kind permission of L. Hugh Newman, F.R.E.S.

Sir **Eric Ansorge**—*Cosymbia puppillaria* Hb., five typical specimens bred from the Scilly Isles (emerged 11.x.57), also one ab. *badiaria* Staud. taken at light, Chalfont St. Peter, Bucks., 25.ix.57. (2) *Gonodontis bidentata* Clerck, an aberration taken at mercury vapour light, Chalfont St. Peter, 2.v.57, with typical specimens for comparison. (3) The beetle *Odontaeus armiger* Scop., a female taken at mercury vapour light, Chalfont St. Peter, 30.vi.57.

Mr. **Alasdair Aston** (visitor)—The following dark, variable and typical moths from Aberdeenshire taken during 1956 and 1957: (1) A series of *Apamea monoglypha* Hufn. some quite dark and approaching ab. *aethiops* Tutt. (2) A longer series of *Antitype chi* L. varying from pale grey (darker than Yorkshire examples) through the greenish ab. *olivacea* Steph., to darker grey (possibly approaching ab. *suffusa* Tutt); also a dark female with dark handwings giving the impression of having broader forewings than the male. (3) A series of *Entephria caesiata* Schiff., caught by day on Carn a Bachain near Ballater, Aber., varying from forewings mostly pale grey to forewings mostly dark grey with intermediate banded forms. (4) Examples of *Amathes glareosa* Esp., pinkish, from Suffolk, and medium grey, from Loch of Skene, Dunecht; *A. xanthographa* Schiff. unicolorous dusky brown; *Dysstroma citrata* L. whitish and dark; *Xanthorhoë fluctuata* L. typical and, for comparison, the Aberdeen granite form, unicolorous pale grey; *Lithomoia solidaginis* Hb. examples taken at sugar, light and on heather bloom beside the Loch of Skene; *Trichiura crataegi* L.

males at light at the Loch of Skene, dusky greyish brown, more the colour of the female figured by South; *Herse convolvuli* L. at rest in Aberdeen 7.ix.56.

Mr. B. R. **Baker**—(1) Trichoptera: A short series of *Lype reducta* (Hagen) recorded for the first time in Berks. in May 1957; apart from Berks., the known British distribution is Somerset, Salop, Surrey, Oxon. and Hereford; *Holocentropus picicornis* (Steph.) examples bred from the carnivorous, web-spinning larvae; *Glyphotaelius pellucidus* (Retz.) examples showing colour change between freshly emerged and older specimens. (2) Lepidoptera: *Melanchra persicariae* L., an aberration having the white reniform stigma laterally extended (Pl. II, fig. 5), with a typical example for comparison; *Oria musculosa* Hb., two specimens from the Kennet Valley, Berks., taken on the unusually early date of 3rd July, a month in advance of the usual emergence time.

Mr. W. L. **Barringer**—The following Lepidoptera: *Mimas tiliae* L., a bred specimen with asymmetrical forewings; *Gonodontis bidentata* Clerck, melanic forms; *Allophyes oxyacanthae* L., with white crescent obsolete; *Polia nebulosa* Hufn., dark form; *Apamea monoglypha* Hufn., dark form; *Apatele megacephala* Schiff., dark forms; *Amathes c-nigrum* L., dark form; *Euphyia bilineata* L., dull banded form; *Apamea secalis* L., dark form; *Euplexia lucipara* L., darker than usual.

Mr. Cecil L. **Bell**—Lepidoptera as follows: *Agapetes galathea* L., freshly emerged male with the majority of the hindwing bleached and the forewing partially bleached, Somerset 1957; *Euphydryas aurinia* Rott., extreme aberration both upperside and underside, female, and a series of 30 other variations all bred from Gloucestershire stock, 1957; *Argynnis aglaia* L., an extreme male aberration with very dark wings; a freshly emerged male of the same species with bleached hindwing; five males showing heavy black scaling on the forewings; and a male underside aberration; all taken in Somerset 1957; *Hyloicus pinastri* L., a series of eight, all bred from the egg, and a female captured at light in Bournemouth, Hants. Also a series of seven photographs of butterfly varieties taken by Mr. George Taylor.

Dr. N. L. **Birkett**—(1) British Macrolepidoptera from Aviemore, Inv.: *Eurois occulta* L., *Brachionycha nubeculosa* Esp., *Noctua (Triphaena) sobrina* Boisd., *Plusia bractea* Schiff. From Suffolk: *Zanclognatha cribrumalis* Hb., *Laspeyria flexula* Schiff., *Cucullia asteris* Schiff., *Arenostola elymi* Treits., *Nonagria neurica* Hb., *Nola albula* Schiff., *Hadena compta* Schiff. From Westmorland: *Heliothis peltigera* Schiff. taken in a light trap at Kendal, 3.iv.57, of the pale southern European form; *Callimorpha jacobaeae* L., an aberration; *Apamea ophiogramma* Esp., a melanic aberration taken at Kendal; *Spilosoma lubricipeda* L., an aberration with the forewing ground colour smoky and the abdomen similarly tinged; *Cirrhia gilvago* Schiff., a series to show the considerable variation exhibited by this species in the Kendal area; *Hydraecia lucens* Frey., a series from Witherslack; *Plusia bractea* Schiff. From E. Sussex and W. Kent area: *Laspeyria* *flexula* Schiff.; *Hydraecia hucherardi* Mab., taken rather early in the season, 24 and 25.viii.57; *Paracolax derivalis* Hb. From Sussex: a short series of bred *Tiliacea aurago* Schiff. From the Sheffield, Yorks. district: *Apamea scolopacina* Esp. and a bred series of *Cucullia absinthii* L. (2) A selection of European Rhopalocera mainly from Switzerland and N. Italy taken in 1955. Also some specimens from France.

BIRMINGHAM NATURAL HISTORY AND PHILOSOPHICAL SOCIETY—A gadget for holding a pinned insect in an inverted position for examination of its underside. Made from a lady's "spring curl-clip" by knocking a pin through the rivet-dents.

Mr. C. H. S. BLATHWAYT—Lepidoptera taken during 1957: *Gortyna* (*Hydraecia*) *petasitis* Doubl., a specimen taken at light at Salisbury, Wilts., on 17th August; *Caradrina alsines* Brahm., some nice forms taken during the year; *Laphygma exigua* Hb., a specimen taken at light in the New Forest, Hants., 20th August; *Heliothis peltigera* Schiff., an early spring specimen from Weston-super-Mare, Som.; *Plusia gamma* L., a few specimens from Weston-super-Mare showing variation in the "Y" marking; *Rhodometra sacraria* L., a male taken at light in the New Forest, 4th July; *Nycterosia* (*Nyctosia*) *obstipata* F., a female taken at light in the New Forest, 3rd July; *Euphyia luctuata* Schiff., a forewing aberration from Ham Street, Kent.

A. D. BLAXILL—(1) One of our rarest wild plants. This plant was first found in East Anglia by Miss Roper of Colchester in 1925 and was sent to the Botanical Institute for naming. It was named *Tetragonolobus siliquosus* Roth., but in Clapham, Tutin and Warburg (1952, *Flora of the British Isles*, p. 435) it is described as *T. maritimus* (L.) Roth., two other names being given as synonyms, *Lotus maritimus* L. and *L. siliquosus* L. (2) A few insects taken in the Alps (Austrian Tyrol) during the latter half of June 1957: *Carterocephalus palaemon* Pall., taken at about 6,500 ft., near Kuhtai; *Pyrgus alveus* Hb., also taken at about 6.500 ft. near Kuhtai; *Cyaniris semiargus* Hb., taken near Fulpmes in the Stubai valley at about 3,000 ft., where they were not uncommon; *Melitaea athalia* Rott., taken on the mountain side at about 3,000 ft. near Fulpmes, plentiful; *Palaeochrysophanus hippothoë* L. and *Colias hyale* L.,a series of three males, two females and one underside of each species, taken near Fulpmes at about 3,000 ft. where they were not uncommon; *Pieris napi* L. ab. *bryoniae* Ochs., taken near Fulpmes, the only example seen; a fritillary flying with *M. athalia* which the exhibitor is unable to name; *Proclossiana eunomia* Esp. (*aphirape* Hb.), taken near Fulpmes at about 3,000 ft.; *Issoria lathonia* L., taken in the Stubai valley, flying over the alpine fields at about 3,500 ft., not uncommon; *Erebia manto* Esp., taken just below snow level near Kuhtai at almost 7,000 ft., locally plentiful; *E. medusa* Schiff., taken on the way up to Kuhtai at about 6,000 ft., locally plentiful; *Pararge petropolitana* F. (*hiera* Hb. et auct nec. F.), taken on the way up to Kuhtai at about 5,500 ft., the only example seen.

Lady Bolingbroke—Several water colour drawings of British butterflies by the late F. W. Frohawk.

Mr. and Mrs. E. H. Bolton—(1) A selection of interesting aberrations of *Lysandra coridon* Poda taken between 1952 and 1957 in the Isle of Purbeck, Dorset, comprising:—Upperside aberrations: an intersex? (Pl. I, fig. 4) resembling a male *ultramelaina* B. & L. figured by Bright and Leeds (1938, *A monograph of the British aberrations of the Chalk-Hill Blue butterfly*, Bournemouth, Pl. I, fig. 17) and taken in July 1955 by Mrs. Bolton; male *pulla* B. & L., July 1955; male colour aberration, possibly a form of *atrescens* Tutt + *suffusa* Tutt + *punctata* B. & L., taken by Mrs. Bolton, August 1957. Underside aberrations: a male *alba* B. & L. + *major* Tutt (Pl. I, fig. 2), July 1952; a female *alba* + *radiata* Courv., August 1957; a male *parallela* Courv., taken by Mrs. Bolton, July 1957; a male *striata* Tutt + *postcaeca* B. & L., taken by Mrs. Bolton, July 1956. (2) *Zygaena filipendulae* L., two examples, male and female, of ab. *chrysanthemi* Hb. taken in the Isle of Purbeck, August 1957. These are similar to the one figured in South (*The Moths of the Brit. Is.*, **2**: pl. 148, fig. 7) the female, taken by Mrs. Bolton, is rather darker than the figure.

Mr. R. S. Bowden—*Pieris napi* L. two ferraniacolor transparencies of the recessive yellow-green variety of the larva photographed by Mrs. Jean Bowden. Each transparency showing two yellow-green larvae with three of the normal colour, one of which (bluer) is about to pupate. (Experimental details in *Entom.*, **91**: 110-111, 1958).

Mr. R. F. Bretherton—(1) Lepidoptera from the Scilly Isles: *Herse convolvuli* L., six examples bred from parent obtained by Mr. Austin Richardson, September 1956, the early stages were forced and the moths emerged 16th and 24th November, 17th December 1956, 3rd January, 8th February and 16th June 1957; *Leucania unipuncta* Haw., two examples taken at sugar 5.ix.57; nine *Agrotis puta* Hb. ? s.sp. nov., eight *Plusia festucae* L., a *Laphygma exigua* Hb., six *Caradrina ambigua* Schiff., two *Abrostola trigemina* Werneb. (*triplasia* L. auctt nec L.), nine *Scopula marginepunctata* Goeze, all taken between 31.viii. and 6.ix.57. (2) Other Lepidoptera: ten *Hydraecia hucherardi* Mab., Appledore, Kent, 21.ix.57; an *Ennomos autumnaria* Wernb., Ham Street, Kent, 22.ix.57; three *Cucullia absinthii* L., *e larvis*, Ottershaw, Surrey; a *C. asteris* Schiff., *e larva*, Ham Street; ten *Stilbia anomala* Haw., Manaton, Devon, 28.viii.57; eight *Xanthorhoë biriviata* Borkh., from N. Surrey parent, emerged March to April 1957; three *Aplasta ononaria* Fuessl., Folkstone, Kent, 5.vii.57; six *Eupithecia plumbeolata* Haw., Durfold, Surrey and Blean Wood, Kent; nine *E. pimpinellata* Hb. (*denotata* Guen.), *e larvis*, Clandon, Surrey; *E. millefoliata* Rossl., *e larvis*, Lydd, Kent; five *E. inturbata* Hb., Abinger and Chiddingfold, Surrey; a *Leucania obsoleta* Hb., Ottershaw, at light, 18.vi. 57; an *Earias clorana* L., Ottershaw, 4.vii.57; a *Mythimna turca* L., Ottershaw, 29.vi.57; a *Nola strigula* Schiff., Chiddingfold, 29.vi.57; a dark form of *Dasychira pudibunda* L., Ottershaw, 16.vi.57; *Hydraecia paludis*

Tutt, an aberration with all forewing markings obsolete except for a small white crescent; *Chaonia* (*Drymonia*) *ruficornis* Hufn., a white aberration; four *Lithophane leautieri* Boisd. (*lapidea* auct. nec Hb.), Eastbourne, Sussex, 11.x.57.

British Museum (Natural History)—A series illustrating parallel modifications in the wing patterns in the geographical races of species of the genus *Euploea* F. (Rhopalocera; Danaidae); a series of continental examples illustrating variation in six species of 'Fritillary' that occur in Britain; a series illustrating gynandromorphism, teratological and other abnormalities in Rhopalocera.

Frederick C. Brown—Silk Moths from the Old and New Worlds. With a few exceptions, these were bred by the exhibitor, the remainder were hatched from purchased or exchanged pupae.

Mr. F. D. Buck—Three cases of Coleoptera taken in sedge litter at Wood Walton Fen, Hunts.

Mr. B. S. Burns—Aberrations of Rhopalocera taken during 1957. (1) *Argynnis selene* Schiff., a female with most of the central spotting on both forewings obsolescent and a few black marks missing from each hindwing (Pl. 1, fig. 5), taken 15th June, S.E. Hants. (2) *Euphydryas aurinia* Rott., a male with a few of the black markings missing from the central area of each forewing, the hindwings being normal, taken 1st June, S.E. Hants. (3) *Maniola tithonus* L. ab. *excessa* Leeds, a female with two small spots below the normal sub-apical ocellus on each forewing, taken 8th August, S.E. Hants.

Mr. S. E. W. Carlier—(1) A short series of *Argynnis selene* Schiff. from the Wyre Forest, Salop/Worcs., including: an almost white specimen taken at honey-dew on an alder at mid-day, 23.vi.29; a large female taken at flowers of *Lychnis flos-cuculi* L. (Ragged Robin), 24.vi.56, similar to that depicted by Frohawk, F. W. (1938, *Varieties of Brit. Butterflies*, Pl. 12) under the name of ab. *marphisa* Späng., but quite unlike the description of ab. *marphisa* Herbst in Seitz, A. (1906 et seq., *Macrolepidoptera of the World*, Palearctic Region, **1**: 228) a probably undescribed form taken by Mr. Wells in June 1937; also some second brood examples about 25 of which were caught by exhibitor's father and himself at Hickling, Norfolk, 21 and 29.viii.14. There were no signs of a second brood in the same spot in either 1919 or 1923 both of which were also hot summers. (2) Four examples of *Procus literosa* Haw., two each from the Birmingham district and the "Black Country" showing probable industrial melanism. All examples of this moth seem to be very much darker than coastal specimens, three of which were included for comparison, one each from Norfolk, Hants., and Kincardine, Scotland.

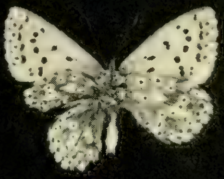
Mr. G. A. Cole—Lepidoptera: *Angerona prunaria* L., a series including heavily banded males and females, bred from a typical female taken at light at Castor Hanglands near Peterborough, Northants., 15.vii.57; a series of *Sterrha eburnata* Wocke, bred from females taken at light at the Sychnant Pass, N. Wales, 29 and 30.vi.57; *Hydrillula* *palustris* Hb., a single moth taken at light in Holm Fen, Hunts., 31.v.57; *Erannis defoliaria* Clerck, an extreme melanic specimen from Ranmore Common, Surrey, 5.xii.57.

Major A. E. Collier—Aberrations of Rhopalocera captured or bred from Surrey and Wiltshire during 1957; *Argynnis selene* Schiff., minor aberrations from Surrey; *Maniola jurtina* L., male and two female ab. *antiexcessa* Leeds, and a female ab. *pupillatanulla* Leeds; *Coenonympha pamphilus* L. abs. *partimtransformis* Leeds, *post-excessa* Leeds and *latiora-postquadriexcessa* Leeds; *Aphantopus hyperantus* L. ab. *lanceolata* Shipp, four bred females of different colours, from 5th generation; *Pyrgus malvae* L., three aberrations from Surrey; *Euphydryas aurinia* Rott., a short series showing variation in colour and pattern in the 8th generation in a Surrey colony; *Lysandra coridon* Poda, four male abs. *semifowleri* B. & L. of an F.2 generation and a halved gynandromorph, Wilts., 11.viii.57; *Pararge megera* L., a remarkable aberration taken at Llanbedr in August 1911 by the late J. E. Kempe.

Mr. S. Coxey—Lepidoptera taken during 1957: from Dungeness, Kent; *Arctia villica* L., an extreme female aberration with all normal spotting absent (Pl. II, fig. 1); *Spilosoma urticae* Esp., *Hadena albimacula* Borkh., *H. conspersa* Schiff., *Earias clorana* L., *Zygaena filipendulae* L., a bred series with one extreme ab. *confluens* Obth.: from Tilgate, Sussex; *Stauropus fagi* L., a short series including melanics, *Drymonia dodonaea* Schiff. (*trimacula* Esp.), two with excess white on forewings, *Euphyia unangulata* Haw., *Atolmis rubricollis* L.: from Sussex; *Melanthia procellata* Schiff.: from Surrey; *Cepphis advenaria* Hb.; near Carnforth, Westmorland; *Philereme transversata* Hufn., *Triphosia dubitata* L.: N. Wales; *Philereme vetulata* Schiff.: Witherslack, Westmorland; *Tholomiges turfosalis* Wocke, *Scopula ternata* Schrank: Arnside, Westmorland; *Photheds captiuncula* Treits.: near York, Yorkshire; *Epione vespertaria* L., *Zygaena lonicerae* von Schrêv.: Middlesex; *Lycia hirtaria* Clerck: Longridge, Lancs; *Lasiocampa quercus* L., four dark females, bred: Formby, Lancs.; *Euxoa cursoria* Hufn.: Bolton, Lancs.; *Eumichtis adusta* Esp., *Orthosia gracilis* Schiff., a dark form with typical form for comparison, *Notodonta dromedarius* L., a coal-black example: Holme Moss, Yorks.; *Eulype hastata* L., *Scopula nigropunctata* Hufn. (*strigilaria* Hb.).

ANNUAL EXHIBITION. 26th October 1957.

1. *Lysandra coridon* Poda, teratological specimen (N. B. Potter). 2. *Lysandra coridon* Poda ab. *alba* B. & L. + *major* Tutt (E. H. Bolton). 3. *Spilosoma lubricipeda* L. aberration (E. J. Hare). 4. *Lysandra coridon* Poda intersex? resembling ab. *ultramelaina* B. & L. (E. H. Bolton). 5. *Argynnis selene* Schiff., female aberration (B. S. Burns). 6. *Hesperia comma* L. aberration (M. Pring). 7. *Lycaena phlaeas* L. aberration (T. D. Fearnehough). 8. *Callophrys rubi* L. aberration (E. C. Pelham-Clinton).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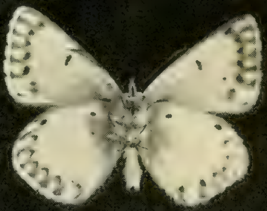
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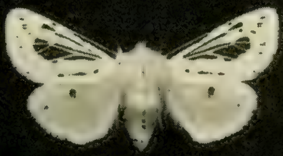
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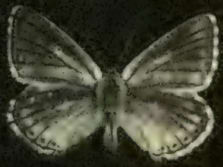
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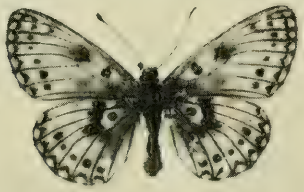
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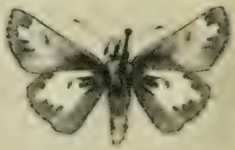
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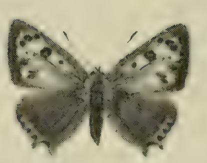
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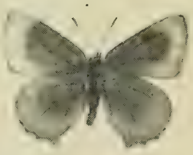
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[*Photograph by W. H. T. Tams*]

Mr. Clifford Craufurd—A Zygaenid moth found in a bunch of bananas from the Cameroons at a factory in Bishops Stortford, Herts.; a typical example of *Chiasmia clathrata* L. with three ab. *nocturnata* Fuchs. and a light example; a typical example of *Brachionycha sphinx* Hufn. with one nearly melanic; *Siona lineata* Scop. taken in W. Sussex in 1938 when they were very common, the fields in which they occurred have since been ploughed up; *Hadena compta* Schiff., one example taken on a garage window, 20.vii.54, and another at mercury vapour light, 21.vii.56, in Bishops Stortford; two dark red examples of *Amathes castanea* Esp., from Aviemore, Inv., and a grey one from the New Forest, Hants.; *Alcis repandata* L. showing variation, one of which, ab. *conversaria* Hb., is from N. Devon.

Mr. P. N. Crow—A collection of Southern Rhodesian Lepidoptera made in a few days early in 1955, which included some fine examples of polymorphism exhibited by *Precis archesia* Cr., *P. pelasgis* Godt., and two forms of *Papilio dardanus* Brown race *cenea* Stoll., race *hippocoonoides* Haase and form *natalica* le Clef, the last named being represented in the British Museum (Nat. Hist.) by three examples only, all from Natal.

Dr. G. A. N. Davis, Dr. J. F. D. Frazer and Comdr. G. W. Harper—Series of the moths *Colostygia didymata* L. and *Cerapteryx graminis* L. from the Faroe Isles, Scotland and Kent, to show the differences. The Faroe *C. didymata* resemble more the Kentish examples in size, but the Scottish ones in colouring. They include an albino and another male with the brown markings replaced by black. The Faroe *C. graminis* are both small insects and resemble the Kentish specimens in colour.

Mr. C. H. Dixon—Nine *Cucullia lychnitis* Ramb. from 12 larvae taken at Micheldever, Hants., 22.viii.55, which emerged 24.v.57 to 18.vi.57, the other three having emerged normally during July and August 1956; four *Lygris mellinata* F. bred June 1957, from Micheldever stock; two *Hadena conspersa* Schiff. emerged June 1957 from a number of larvae taken in Unst, Shetland Is., July 1954, there are still two living pupae from this batch; three *Hydriomena ruberata* Frey. bred from larvae 9.viii.57 from Aviemore, Inv.; a male and a female *Epione vespertaria* L. bred from a female taken 28.vii.56, Strensall, Yorks.; *Zenobia subtusa* Schiff. bred from larva 30.v.57, Ham Street, Kent; a series of *Sterrha eburnata* Wocke bred September 1957 from N. Wales; two *Noctua* (*Triphaena*) *orbona* Hb., 5.viii.57, Suffolk; *Agrotis exclamationis* L. an aberration (Pl. II, fig. 6) taken at Micheldever, 25.vi.57; two *Eustroma reticulata* Schiff., 23.vii.57, Windermere, Westmor.; *Eupithecia irriguata* Hb., 22.iv.57, New Forest, Hants.; three *Discoloxia blomeri* Curt., 7.vii.57, Bucks.; *Eublemma ostrina* Hb. taken in mercury vapour light trap, 30.vi.57, Micheldever; *Omphaloscelis lunosa* Haw. of varied forms, 18.ix.57, Portland, Dorset; two *Antitype flavicincta* Schiff., 18.ix.57, Portland; six *Abraxas sylvata* Scop., 7.vii.57, Bucks.

Mr. F. V. Duckworth—Part of a collection of Lepidoptera made in the Federation of Malaya during 1951-1956. Families shown were Papilionidae, Nymphalidae, Danaiidae, Lycaenidae and Amathusiidae.

Mr. R. C. Dyson—The following Lepidoptera; *Agrotis ripae* Hb., a series bred from larvae collected in 1956 from N. Devon, giving darker forms than the series bred from larvae collected by Mr. L. E. Savage on the Camber Peninsula, S. Wales, only separated by a few miles of the Bristol Channel; *Nonagria algae* Esp., a series bred from pupae collected from mid-Sussex, 50 per cent were stung and all moths were smaller than usual, the *Typha* (Reedmace) was also small due probably to the very dry Spring; *N. sparganii* Esp., a small series bred from pupae collected from *Typha* near Lewes, Sussex; *Xylena vetusta* Hb. series bred from ova obtained by Mr. G. E. Hyde from a female captured at Aviemore, Inv.; *Leucania pudorina* Schiff., a series bred from larvae collected in Woolmer Forest, Hants.; *L. littoralis* Curt., a series bred from larvae collected on *Ammophila arenaria* (L.) Link. (Marram Grass) at Climping, Sussex; *Eremobia ochroleuca* Schiff., a series bred from larvae swept from *Arrhenatherum elatius* (L.) J. & C. Pressl. (False Oat Grass) near Brighton, Sussex; *Hadena compta* Schiff., a series bred from Sweet William flowers collected near Dover, Kent, 1956; *H. lepida* Esp., a few second brood moths bred from larvae collected in July 1957; *Orthosia gothica* L., a series bred from ova of a Scotch parent.

Mr. T. R. Eagles—About 30 species of fungus mostly gathered in Epping Forest, Essex. Noticeable among those from the Forest were *Cortinarius sanguineus* (Wulf.) Fr. and *C. torvus* Fr. non Quél. From Enfield, Middlesex there were *Hygrophorus psittacinus* (Schaeff.) Fr. and *H. virgineus* (Wulf.) Fr. The former being freshly gathered were deep green and very slimy, but they quickly dry out yellow. The latter had red spots, often at the centre of the *pileus*, caused by the mould *Epicoccum purpurascens* Ehrenb. ex Wallr. This secondary fungus was identified by Mrs. F. L. Balfour-Browne, Mycologist, British Museum (Nat. Hist.).

Canon T. E. Edwards—(1) A species new to Britain, *Laspeyresia prunivorana* Ragonet, taken at light at Dungeness, Kent. The larvae feeds on *Prunus* and *Cerasus* fruits. (2) Lepidoptera, either captured or bred during the current year; a bred series of *Euphydryas aurinia* Rott. from Dorset; *Hemaris fuciformis* L. bred from Dorset larva; *Clostera pigra* Hufn. bred from Dorset larvae; *Nola cucullatella* L., Dungeness; *Celama trituberculatus* Bosc. (*aerugula* Hufn., *centonalis* Hb.); *Cybosia mesomella* L. and a variety, Ham Street, Kent, June; *Eilema pygmaeola* Doubl., Dungeness, July; a series of *Hadena conspersa* Schiff. taken at light, Dungeness; a series of the pale form of *H. lepida* Esp.; five *H. albimacula* Bork., Dungeness; *Jaspidea fasciana* L. (*pygarga* Hufn.), Ham Street; three bred specimens of *Catocala fraxini* L., Ham Street; four bred *Calophasia lunula* Hufn. emerged July 1957, from Dungeness larvae; *Nonagria sparganii* Esp., bred from Dungeness larva; *Euphyia rubidata* Schiff., Dungeness; two

Epirrhoë galiata Schiff., Dungeness; *Eupithecia linariata* Schiff., Lydd, Kent, 4th July; *Pseudoterpna pruinata* Hufn., Dungeness; *Chlorissa viridata* L. bred from Dorset larva; *Sterrha subsericeata* Haw., Dungeness; a bred series of *Larentia clavaria* Haw., W. Kent. Pyrales: *Stenoptilia coprodactyla* Zell., two specimens bred by chance from a bunch of fresh gentians sent by post from Pontresina, Switzerland; *Capperia britanniodactylus* Gregs., Dungeness; *Schoenobius forficellus* Thunb., Dungeness; *Nymphula stratiotata* L., Dungeness; *Pyralis farinalis* L., Dungeness; *Nephopterix genistella* Dup., Dungeness at light in June; *Phycita betulae* Goeze, Dungeness; *Euzophera neophanes* Durr., Dungeness; *E. marmorea* Haw., Dungeness; *Dioryctria palumbella* F., Dungeness; *Platytes cerussellus* Schiff., female, Dungeness. Tortrices: *Phalonia cnicana* Doubl., W. Kent; *Tortrix ? viburniana* F.; *Eulia politana* Haw.; *Cnephasia longana* Haw.; *Peronea variegana* Schiff.; *Argyroploce purpurana* Haw., Dungeness; *Pammene regiana* Zell., Lydd, Kent; *Eucosma expallidana* Haw., Dungeness; *E. caecimaculana* Hb., Dungeness; *Endothenia antiquana* Hb., Dungeness; *Peronea aspersana* Hb., Dungeness. Psyches: *Epicnapteryx pulla* Esp. and *Talaeporia pseudobombycella* Hb., both from Dungeness. Tineides: *Anacampsis populella* Clerck, bred W. Kent; and the following at light at Dungeness; *Gelechia suppeliella* Wals., *G. diffinis* Haw., *Sophronia semicostella* Hb., *Phthorimaea leucomelanella* Zell., *P. atriplicella* F.R., *Swammerdamia caesiella* Hb., *Batia lambdella* Don., *Aristotelia palustrella* Dougl., *Depressaria costosa* Haw., *D. badiella* Hb., *Trichophaga tapetzella* L., *Coleophora onosmella* Brahm. (3) Lepidoptera taken in a mercury vapour trap in a garden at Dulwich (Borough of Camberwell) during 1957: *Pheosia tremula* Clerck, 1st May and 12th August; *Cucullia absinthii* L., July; *Ceramica pisi* L.; *Hadena cucubali* Schiff.; *Tholomiges turfosalis* Wocke, July; *Gortyna (Hydraecia) micacea* Fuess.; *Cosmia pyralina* Schiff., July; *Arenostola pygmina* Haw., August; *Itame wauaria* L.; *Chiasmia clathrata* L., June; *Hydriomena furcata* Thunb., July; *Platyptilia pallidactyla* Haw.; *Stenoptilia zophodactyla* Dup.; *Euzophera pinguis* Haw.; four *Anania nubilalis* Hb.; *Hypochalcia ahenella* Hb.; *Eucosma nigromaculana* Haw.

Mr. R. Eldon Ellison—(1) A selection of rare or little known Lepidoptera from the Lebanon and Morocco. (2) Lepidoptera collected in Eastbourne, Sussex, during 1957 of which the most interesting were *Arenostola extrema* Hb. (the first Sussex record), a specimen of *Ellopia fasciaria* L. with green hind-wings (ab. *intermediaria* Gmpbg.) thought to be a migrant, since the typical form has not been recorded from Eastbourne; and a series of *Lithophane leautieri* Boisd. which now appears to be well established. Also a selection of Lepidoptera taken during a visit to Cornwall in June including a melanic specimen of *Cleorodes lichenaria* Hufn. and a series of *Agrotis trux* Hb. s.sp. *lunigera* Steph. closely resembling the dark Irish form.

Mr. L. J. Evans—Short series of *Agrotis exclamationis* L. and *Apamea sordens* Hufn. taken at mercury vapour light, N. Birmingham, Warwicks.; a moth which is believed to be *Melanchra persicariae* L., rather worn, showing striking extra white spot (orbicular); *Harpyia bicuspis* Borkh., Cannock Chase, Staffs.; *Laphygma exigua* Hb. taken at mercury vapour light, a species not very often seen in Birmingham; *Aglais urticae* L. with a yellow area surrounding the two central spots on the forewings; *Apamea monoglypha* Hufn., melanic form taken at sugar at Cannock Chase; *Xanthorhoë fluctuata* L., variety and typical form from N. Birmingham.

Mr. R. Fairclough—Moths caught at mercury vapour light during 1957. (1) Camber, Sussex; *Arenostola elymi* Treits., *Chilodes maritima* Tausch., *Eustrotia uncula* Clerck, *Leucania littoralis* Curt., *Agrotis ripae* Hb., *Earias clorana* L., *Mesotype virgata* Hufn., *Spilosoma urticae* Esp., *Leucoma salicis* L., *Semiothisa alternaria* Hb., *Spaelotis ravida* Schiff., *Hydraecia hucherardi* Mab. (2) Grassington, Yorks.: *Entephria caesiata* Schiff., *E. flavicinctata* Hb. taken during the daytime, *Hydriomena furcata* Thunb. (3) Westmorland: *Photedes captiuncula* Treits., at Arnside; *Diarsia dahlii* Hb., *Amathes castanea* Esp., *Celaena haworthii* Curt. and *Hydraecia ? lucens* Frey. at Witherslack. (4) Formby, Lancs.: *Euxoa cursoria* Hufn., *E. tritici* L., *E. nigricans* L., *Actebia praecox* L. and *Lasiocampa trifolii* Schiff. (5) Portland, Dorset: *Aporophyla australis* Boisd. and *Eumichtis lichenea* Hb. (6) Surrey: *Euphyia cuculata* Hufn. at Betchworth; *Platytes alpinellus* Hb. at Leigh; *Clysia ambiguella* Hb. at Leith Hill; *Anticollix sparsata* Treits. bred from Byfleet. (7) Eastbourne, Sussex: *Lithophane leautieri* Boisd. (*lapidea* auct. nec Hb.). (8) Dungeness, Kent: *Douglasia ocnerostomella* Staint., *Lithocolletis trifasciella* Haw., *L. spinicolella* Zell., *L. faginella* Zell., *L. quercifoliella Zell.* and *L. cramerella* F.

Mr. T. D. Fearnehough—(1) Aberrations of *Lycaena phlaeas* L. all captured in, or reared from, N. Derbyshire or S. Yorkshire, including: *schmidtii* Gerh., *lacticolor* B. & L., *radiata* Tutt, *brunnescens* B. & L., *antilacticolor* B. & L., *subradiata* Tutt, *subradiata* Tutt + *parvipuncta* Strand., *caeruleopunctata* Ruhl., *typica-caudata* Tutt, *obliterata* Scudd., *bipunctata* Tutt, *antidiscoelongata* B. & L., *magnipuncta* Tutt, *latomarginata* Tutt, *minor* Tutt, *major* Tutt, *remota* Tutt, *infraradiata* Tutt, *obsoleta* B. & L., *suffusa* Tutt, *quintaerratica* B. & L., and a striking unnamed aberration (Pl. I, fig. 7). (2) Water colour paintings of species of *Papilio* (Swallowtails) from the African, Indo-Australian and American regions.

Dr. J. F. D. Frazer—see Dr. G. A. N. Davis.

Mr. A. E. Gardner—The following species of Orthoptera (*sens. lat.*) collected from Libya and Jordan during 1957 by Mr. W. H. Reay: Saltatoria:—*Acridella nasuata* (L.), *Dociostaurus maroccanus* (Thunb.), *Oedaleus decorus* (Germ.), *Oedipoda coerulescens* (L.), *O. miniata* (Pall.), *Sphingonotus octofasciatus* (Serv.), *S. tricinctus* (Walk.), *S. luteus* Kr., *S. eurasius* Mitsch., *Helioscirtus capsitanus* (Bon.), *Tmethis pulchripennis* (Serv.), *T. cisti* (F.), *Pyrgomorpha conica* (Ol.), *P. cognata* Kr., *Acinipe hesperica* Ramb., *Dericorys lobata bolivari* Kr., *Anacridium aegyptium* (L.), *Schistocerca gregaria* (Forsk.), *Thisoicetrus annulosus* (Walk.), *T. littoralis* (Ramb.), *Calliptamus barbarus* (Costa), *C. italicus* (L.), *C. okbaensis* (Kheil), *Decticus albifrons* (F.), Dictyoptera: *Rivetina fasciata* (Thunb.), *Blepharopsis mendica* (F.), *Iris deserti* Uv., *Sererinia finoti* Chop., *Eremiaphila spinulosa* K., and *Hypsicorypha gracilis* (Burm.). Also *Scintharista notabilis* (Walk.) (Saltatoria, Acrididae) taken by Mr. E. S. A. Baynes, Tenerife, 25.iii.57.

Mr. P. J. Gent—(1) *Plusia gamma* L., a specimen with a broad dark band from the discal "Y" running to the dorsum (Pl. II, fig. 3); another with the right side forewing somewhat reduced and with the discal mark absent; also typical example for comparison. (2) *Zygaena trifolii* Esp. ab. *minoides* Selys. with two intermediate forms all from the same locality in N. Devon.

Mr. B. McC. Gerard—Insects collected during the Imperial College Ecological Survey in Ghana this past summer. The specimens exhibited were collected in the Bobiri Forest Reserve, Kumasi, between 26th July and 15th September, unless otherwise stated. Hemiptera: *Ugada limbata* F. (Cicadidae); *Clovia bigoti* Sign., *Poophilus grisescens* Schaum., *Ptyelus grossus* F., *Locris rubens* (F.) and *L. maculata* F. (Cercopidae); *Amitrochates grahami* Dist. (*Membracidae*); *Elasmoscelis* sp. (Lophidae); *Pochazia fasciata* F. and *Ricania mediana* Mel. (Ricanidae); *Phromnia limbata* F., and *Lawana adscendens* F. (Flatidae) from Ibadan, Nigeria, also *Cryptoflata unipunctata* Oliv. (Flatidae). Dictyoptera: *Sphodromantis centralis* Rehn., *Polyspilota aeruginosa* Goeze, *Oxypilus annulatus* Serv. and *Hypsicorypha guichardi* La Greca (Zinder). Also shown were the following prepared by Mr. C. D. Green: Shell of Giant West African forest snail (*Achatina*); black forest scorpion from Ibadan, Nigeria, 1.ix.57; small desert scorpion from Agades, French West Africa, 20.viii. 57; and a Ricinulid, probably in the West African genus *Cryptostemma*.

Mr. B. Goater—The following Lepidoptera: *Agrotis vestigialis* Hufn., specimens from Dorset including a bright form with silvery-grey ground colour; *A. ripae* Hb., a series from Hayling Island, Hants.; *Amathes glareosa* Esp., a series from the New Forest, Hants., including pinkish forms; *Polia hepatica* Clerck (*Aplecta tincta* Brahm), a bred series from Surrey; *Apamea ophiogramma* Esp., a series including dark coloured specimens from N.W. London; *Calophasia lunula* Hufn., bred from Kent and Sussex; *Naenia typica* L., a series taken in the exhibitor's garden at Mill Hill, Middx.; *Hydraecia hucherardi* Mab., a varied series bred from pupae dug in Sussex; *Gortyna* (*Hydraecia*) *petasitis* Doubl., a series, mostly females, captured at dusk, 17.v.iii to 1.ix.57, in the London area and Hants.; *Arenostola elymi* Treits., a series from Suffolk; *Dysstroma truncata* Hufn., some dark forms from Mill Hill, with specimens from Hants., for comparison; *Xanthorhoë biriviata* Borkh., a short varied series, first brood, and one second brood example; *Euphyia luctuata* Schiff., a series from Kent, and an aberrant second brood specimen bred *ab ovo* during a heat wave, other larvae of the brood died or produced malformed pupae; *Alcis* (*Cleora*) *repandata* L., dark specimens from Mill Hill compared with examples from Hants.

Mr. B. S. Goodban—see Mr. W. E. Minnion.

Mr. G. M. Haggett and Mr. A. J. Wightman—Lepidoptera as follows: A series of *Cirrhia ocellaris* Bork., bred from larvae and ova from Mildenhall, Suffolk; *Euxoa cursoria* Hufn., from Southwold, Suffolk, larvae; *Actebia praecox* L., from Dawlish, Devon, larvae; *Oria musculosa* Hb., taken near Salisbury, Wilts.; *Dasypolia templi* Thunb., from Freshwater, I.o.W.; *Meliana flammea* Curt., from Norfolk larvae; *Lithophane leautieri* Boisd. (*lapidea* auct. nec Hb.), bred from I.o.W. females and a series taken at mercury vapour light also in I.o.W.; a single *Ceramica pisi* L. with extra pale markings from Bude, Cornwall, and an example of same species from Sussex for comparison; a series of *Rhizedra lutosa* Hb., from Freshwater, I.o.W.; *Gortyna flavago* Schiff., bred from foxglove feeding larvae, Bude; also a bred series of *Cosymbia puppillaria* Hb. reared from a moth taken in the Scilly Isles by Mr. Robin Mere.

Mr. H. E. Hammond—A selection of larvae preserved during 1957, 23 species being new to the collection: *Herse convolvuli* L., Isle of Wight, *Leucodonta bicoloria* Schiff., Continental, *Atolmis rubricollis* L., Cornwall, *Simyra albovenosa* Goeze, Norfolk, *Euxoa cursoria* Hufn., Suffolk, *E. tritici* L., Devon, *Actebia praecox* L., Devon and Norfolk, *Aporophyla australis* Boisd., Isle of Wight, *Dasypolia templi* Thunb., Devon, *Brachionycha nubeculosa* Esp., Inverness-shire, *Meganephria bimaculosa* L., Continental, *Petilampa minima* Haw., Sussex, *Celaena leucostigma* Hb., Sussex, *Arenostola brevilinea* Fenn, Norfolk, *Leucania obsoleta* Hb., Hunts., *Enargia paleacea* Esp., Staffs., *Lithophane leautieri* Boisd. (*lapidea* auct. nec Hb.), Isle of Wight, *Lithomoia solidaginis* Hb., Derbys., *Xylena vetusta* Hb., Inv., two larvae of *Heliothis armigera* Hb. found in tomatoes from the Canary Islands in Birmingham comprising one each of the brown and green form (1957, *Ent. Gaz.*, **8**: 191); *Plusia pulchrina* Haw., Birmingham, forced from ova and was fully grown by 19.x.57, this species is much more common in W. Birmingham than *P. iota* L.; *Lygephila craccae* Schiff., Cornwall; *Zanclognatha cribrumalis* Hb., Norfolk; *Sterrha eburnata* Wocke, N. Wales; *Scopula ornata* Scop., Kent; *S. imitaria* Hb., Norfolk; *Cosymbia puppillaria* Hb., Scilly Isles; *Ortholitha mucronata* Scop. s.sp. *umbrifera* Prout, Devon; *Plemyria rubiginata* Schiff. (*bicolorata* Hufn.), Staffs.; *Xanthorhoë biriviata* Borkh., Surrey; *Discoloxia blomeri* Curt., Lincs.; *Venusia cambrica* Curt., Derbys.; *Opisthograptis luteolata* L., Inv., a very pretty brown and green form; *Gnophos obscurata* Schiff., Dorset. Also exhibited was a long series of each of the following species: *Lycophotia varia* Vill., *Colocasia coryli* L. and *Heliothis peltigera* Schiff. to show the very extensive variation in these species.

Mr. E. J. HARE—Lepidoptera taken or bred during 1957: (1) From the Scilly Isles, May 1957:—*Cosymbia puppillaria* Hb., a female with short series bred therefrom showing F.1 and F.2 generations; *Lasiocampa trifolii* Schiff., male and female bred August 1957; a short series of *Agrotis puta* Hb.; and an aberration of *Hadena conspersa* Schiff. (2) Single specimens of *Leucania unipuncta* Haw. from S. Devon, 24.ix.57, and *Dioryctria splendidella* H.S. from Ham Street, Kent, 3.vi.57. (3) An aberration of *Spilosoma lubricipeda* L., forewings with black streaks and central patch (Pl. I, fig. 3), Pinden, Kent, 18.vi.57. Minor aberrations. From Ham Street, Kent: *Biston strataria* Hufn., *B. betularia* L., and *Dysstroma truncata* Hufn. From Pinden, Kent: *Arctia caja* L., *Orthosia stabilis* Schiff., *Hadena lepida* Esp., *Cerapteryx graminis* L., *Agrotis exclamationis* L., and *Pyralis* (*Hypsopygia*) *costalis* F.

Comdr. G. W. HARPER—Lepidoptera taken during 1957. (1) S. Devon, September: *Plusia ni* Hb., a male in good condition found at rest on a wall at Torcross; *Leucania unipuncta* Haw., a very fresh example at mercury vapour light. (2) Scotland: *Ammogrotis lucernea* L., examples of a new colony of steel-grey colour found at Newtonmore, Inv., remarkable for the distance from the sea; *Ectropis bistortata* Goeze, a banded aberration, and *Hepialus humuli* L., a large and very red female, both from Newtonmore; *Spilosoma lubricipeda* L., an extreme example of the dark Scottish form taken in Argyll. See also Dr. G. A. N. DAVIS.

Mr. M. HARRISON-GRAY—Saturniidae (Lep.), set specimens of some unusual exotic species bred in London, including: *Antheraea yamamai* Guer. ab. *morosa* Butler, ex Japan; and a gynandromorph, left side male, right side female, from a cross pairing of *Antheraea pernyi* Guerin-Meneville and *Antheraea roylei* Moore, ex N. India. Other species were from Natal, Spain, Belgian Congo and S. Rhodesia.

Mr. T. J. HONEYBOURNE—Living larvae, pupae and imagines of *Dione vanillae* L. (the Gulf Fritillary) on plants of *Passiflora caerulea* L. Also the following live larvae: *Philosamia ricini* Boisd., from India and China; *Antheraea pernyi* Guer. (Chinese Oak Silkmoth); *Dendrolimus pini* L. (European Pine Lappet); a species the ova of which were sent from Gilraltar, name not determined, feeding on *Salix* and *Crataegus* and which would also accept Plum and Heather.

Mr. J. O. T. HOWARD—(1) A case of common butterflies from Ceylon, including some interesting examples of mimicry. (2) Specimens of *Orthosia gothica* L. and *O. incerta* Hufn. selected from variable series taken at Aviemore, Inv., in April 1957.

Mr. and Mrs. T. G. HOWARTH—Series of *Gortyna* (*Hydraecia*) *micacea* Esp. and *Plusia gamma* L. taken in a mercury vapour light trap at Arkley, Herts., and of *Cirrhia ocellaris* Bork. bred from wild larvae taken in Suffolk.

Mr. GEORGE E. HYDE—Photographs of British and N. American Lepidoptera.

Capt. R. A. Jackson—(1) Minor aberrations of *Lysandra coridon* Poda taken during 1957 in Wilts., including male abs. *pallidula* Tutt and *caerulea* Tutt; females, one gynandrous and abs. *inaequalis* Tutt, *transformis* B. & L., *lutescens* Tutt, *flavescens* Tutt, *rufescens* Tutt, *quadripuncta* Courv., *crassipuncta* B. & L., *bi-I-nigrum* B. & L., *discoelongata* Courv. and *postcaeca* B. & L., with another very similar taken at the same spot a few days later. (2) Two specimens of *Orthosia advena* Schiff. (*opima* Hb.) of an almost unicolorous fawn shade, together with two of the more normal forms found in Wilts. These paler specimens do not seem to be mentioned by Tutt (1892, *The British Noctuae and their Varieties*, **2**: 143). Two females of *Oria musculosa* Hb. with very dark ground colour, one being quite exceptional; a female *Sterrha aversata* L. of the banded form with the dark colour of the band extended to the outer margins; a pair of *Ectype glyphica* L. taken in Wilts. on 30th July, a second brood was widespread in August on the downs; together with two males of *Cucullia umbratica* L. taken on 17th and 20th August, also presumably a second brood. (3) Shown on behalf of Mr. M. Pring—A most striking aberration of *Hesperia comma* L. in which the silver spots on the underside of the hindwings had all coalesced to form a large whitish-silver patch in the middle of the wings (Pl. I, fig. 6), taken in Wiltshire during August. Also an example of *Polygonia c-album* L. with almost black hindwings taken in Dorset.

Mr. S. N. A. Jacobs—(1) Representatives of over 400 species of micro-lepidoptera from Madagascar, collected by Dr. Eduard Diehl during three years as a medical officer at Betroka. Several species new to science were found in this collection by M. Pierre Viette and M. Marion of the Paris Natural History Museum. (2) Two examples of *Laspeyresia (Ernarmonia) molesta* Busck., a Tortricid causing damage to peaches, apricots, etc., on the Continent, which may possibly establish itself here.

Mr. F. V. L. Jarvis—Five series of foreign *Colias* reared in Southern England accompanied by a coloured plate illustrating the mature larva of each species: *Colias erate* Esp. s.sp. *poliographus* Motsch., 15 specimens from ova air-mailed from Tokyo, Japan, April 1955; *C. eurytheme* Boisd., 17 specimens from ova laid by a yellow female taken at Tracey, California, 8.x.55; *C. electo* L., 11 specimens from ova air-mailed from Capetown, S. Africa, March 1951; *C. pseudohecate* Brgr., six specimens from ova collected at Njombe, Tanganyika, and flown direct to England; A series of a darker race of *C. pseudohecate* taken at Mt. Elgon, Kenya. In all the above both yellow and white females were shown. The series of *C. eurytheme* contained both forms of the females indicating that the male parent carried the white ground factor. Also a series of five specimens of *C. phicomone* Esp., reared from ova laid by a female taken at Murren, Switzerland, in August 1954. *C. phicomone* is normally univoltine with a winter larval diapause. The other four species are polyvoltine with no diapause.

Mr. F. L. Johnson—Lepidoptera from many parts of the world including *Charaxes achaemenes* Fld., males and females from British Togoland, which Seitz states does not occur in W. Africa, also several new aberrations and subspecies discovered by the exhibitor. Many rare species were also shown including *Charaxes bipunctatus* R., male and female, the latter not being represented in the collections of the British Museum (Nat. Hist.) and *Papilio aristodemus* s.sp. *ponceanus* Schaus. now almost extinct on the Florida Keys.

Mr. A. Kennard—(1) British Lepidoptera: an aberration of *Argynnis euphrosyne* L. from Tubney Woods, Berks.; two specimens of *Agrotis trux* Hb., from Torquay, Devon; a specimen of *Rhodometra sacraria* L., taken on the cliff top at Charmouth, Dorset, in June; a specimen of *Leucania unipuncta* Haw., taken at mercury vapour light on 9th April at Ashburton, Devon; a specimen of *Arctia caja* L., in which much of the dark pigment on the left side has been eliminated, probably due to damage in the pupal state; a specimen of *Oidaematophorus carphodactylus* Hb. from a disused sandpit near Oxford, Oxon. (2) French Lepidoptera: a specimen of *Abrostola agnorista* Dufay, a recently determined species from the southern half of France, with specimens of British examples of *A. trigemina* Werneb. (*triplasia* L. auctt. nec L.) and *A. triplasia* L. (*tripartita* Hufn.) for comparison; a specimen of *Argynnis cydippe* L. ab. *cleodoxa* Ochs. from La Grave, Haute Alpes, 18.vii.57; specimens of *Maculinea arion* L. from different altitudes at Seysell, Dignes, Basses Alpes and La Grave together with specimens from the N. Cornish coast, S. Devon coast and the Cotswolds for comparison; also specimens of the genera *Colias*, *Heodes* and *Leucania*.

Dr. H. B. D. Kettlewell and Mr. A. L. Goodson—Lepidoptera from the Rothschild-Cockayne-Kettlewell Collection: a series of *Apamea exulis* Lef. s.sp. *assimilis* Doubl. collected at Rannoch, Inv., August 1957 by Dr. H. B. D. Kettlewell; a series of *Cosymbia puppillaria* Hb. bred by Dr. Kettlewell *ex ovis* from female taken in Scilly Isles, August 1957; *Phragmatobia fuliginosa* L., extreme homoeosis, showing a large patch of red hindwing on the left forewing, Tring, Herts., July 1957; *Lithophane leautieri* Boisd. (*lapidea* auct. nec Hb.) *ex ovis*, Dr. Kettlewell, I.o.W., bred July 1957, G. Haggett and A. J. Wightman, also *ex ovis*, Dr. Kettlewell, I.o.W., bred October 1957, A. L. Goodson; *Euphyia luctuata* Schiff., a suffused aberration, Ham Street, Kent, June 1957, Dr. Kettlewell; *Agrotis exclamationis* L. two aberrations, Tring, July 1957; *Apamea sordens* Hufn., a dark aberration, Feltham, Middx., June 1957, E. W. Classey; *Procus strigilis* Clerck, a pale aberration, Ham Street, June 1957, Dr. Kettlewell; *Panaxia dominula* L. ab. *conjuncta* Kettlewell, bred August 1957, Dr. Kettlewell. Larvae of *Lithophane leautieri* Boisd. *ex ovis*, I.o.W., Dr. Kettlewell, laid October-November 1956, hatched March 1957, full-fed May 1957. Larvae of *Heliothis maritima* Gras., a series of 16 showing two forms found wild by Dr. Kettlewell, New Forest, Hants., September 1957.

Mr. F. H. LATHAM—Eight cases containing 39 species and 100 forms of geographical races and aberrations of the Nymphaline genus *Precis* Hb. (including *Junonia* Hb.). The exhibit illustrated seasonal dimorphism, greatly developed in this genus, particularly in the African species; sexual dimorphism, in which the female resembles protected distasteful species ("mimicry"); and the development of numerous subspecies or geographical forms in the island chain from Malaya to Australia.

Mr. C. W. MACKWORTH-PRAED—A small collection of Butterflies made with a pocket net during the Pan-African Ornithological Congress in Rhodesia, July 1957.

Lt.-Col. W. B. L. and Mrs. MANLEY—A series of *Satyrus prieuri* Pier. and its dimorphic female *uhagonis* Obth. taken near Albarracin, Spain, in July 1957. Also shown was a selection from Lepidoptera taken in the Albarracin and Jaca districts of Spain between 3.vii and 3.viii.57. The majority of the Heterocera being taken in a mercury vapour trap at Bronchales some 25 miles from Albarracin at 5,500 ft. where, unlike this country, the trap appeared to be as attractive to the micro-lepidoptera as it was to the larger species of the Order.

Miss C. A. MCDERMOTT—A spider found among Jamaican bananas at Borough Green, Kent, on 23.v.57.

Mr. ROBIN MERE—A bred series of *Cosymbia puppillaria* Hb. from one parent taken at Tresco, Scilly Isles. (2) Three *Nothris congressariella* Braund. from Tresco, a species new to the British Isles; four *Crocidosema plebeiana* Zell. from Tresco, of which only three specimens were taken in the British Isles before 1957 so far as is known; included in those shown were two bred specimens; two *Pammene aurantiana* Staud. one from Tresco and one from Ham Street, Kent. (3) A selection of macrolepidoptera taken or bred in 1957 from the Scilly Isles as follows: *Agrotis trux* Hb. s.sp. *lunigera* Steph., with Portland, Dorset, specimens for comparison; *Rhodometra sacraria* L., *Nycterosia obstipata* F.; *Lycophotia varia* Vill., with Surrey specimens for comparison; *Spilosoma lubricipeda* L.; *S. lutea* Hufn.; *Hada nana* Hufn.; *Eublemma parva* Hb.; *Noctua (Triphaena) comes* Hb.; *Diataraxia oleracea* L.; *Laphygma exigua* Hb.; *Hadena conspersa* Schiff., with others for comparison; *Leucania unipuncta* Haw.; *L. obsoleta* Hb.; *Diarsia festiva* Schiff.; *Euxoa cursoria* Hufn.; *Eumichtis lichenea* Hb., with specimens from Kent for comparison; *Herse convolvuli* L. (4) Live larvae of *Leucania unipuncta* Haw.

Mr. J. L. MESSENGER—Six examples of *Herse convolvuli* L. he bred during 1956 from ova laid by a Scilly Isles parent and received from Mr. R. F. Bretherton.

Mr. H. N. MICHAELIS—(1) Lepidoptera from various localities. Lancashire: *Procus latruncula* Schiff., *Eucosma foenella* L. and *Endothenia ericetana* Westw. from Didsbury. Derbyshire: *Elachista gleichenella* F. and *E. megerlella* Staint. from Millers Dale, dark *Antitype chi* L. from Hucklow. Cheshire: *Argyresthia glaucinella*

Zell. from Altrincham, *Leucoptera scitella* Zell. and *Crambus hamellus* Thunb. from Wilmslow. Westmorland: *Cochleophasia pubicornis* Haw. from Arnside, *Zelleria hepariella* Staint. and *Depressaria ciliella* Staint. from Witherslack. (2) A series of *Eucosma crenana* Hb. bred by the late Wm. Mansbridge from Aviemore, Inv., including type specimens of var. *marmorana* Mans. and var. *rufimaculana* Mans. (3) A series of *Mompha ochraceella* Curt. bred from numerous localities in Lancashire, Cheshire and Derbyshire.

Dr. B. P. Moore—(1) The principal forms of the *Carabus monilis* F. complex (Col. Carabidae), together with a map to show their approximate geographical distribution. (2) A case of preserved fungi prepared by the freeze-drying process.

Mr. W. E. Minnion and Mr. B. S. Goodban—The following Lepidoptera: *Pararge aegeria* L., a dark example, Ruislip, Middx., 1957; *Aglais urticae* L., a specimen with areas of white ground colour, Harefield, Middx., 1956; *Mimas tiliae* L., a specimen with the central band reduced to a spot, at mercury vapour light, Pinner, Middx., 1957; *Arctia caja* L., with yellow hindwings and body, bred from larva, Gugh, Scilly Isles, 1957; *Agrotis exclamationis* L., a mosaic, ? albino left side and typical right side, taken at mercury vapour light, Eastcote, Middx., 1957; *Cabera exanthemata* Scop., a bred specimen with no markings, Ruislip, 1956; *Dasypolia templi* Thunb., bred from ova, Perthshire, 1957; *Cleora rhomboidaria* Schiff., a very small specimen, Swanage, Dorset, 1957; *Lycia hirtaria* Clerck ab. *nigra* Cockayne, a bred series, Surrey, 1957; *Selenia bilunaria* Esp., a varied bred series including melanic examples, Cheshire, 1957. Also the following photographs: Lepidoptera: *Eupithecia centaureata* Schiff., *Gastropacha quercifolia* L. larva, *Catocala fraxini* L., *Cosymbia punctaria* L., *Lycia hirtaria* Clerck ab. *nigra* Cockayne male and female, *Angerona prunaria* L., *Brachionycha nubeculosa* Esp., a young larva. Fungi: *Polystictus versicolor* Fr. on a birch stump, Pixie cups, and *Lepiota procera* (Scop.) Fr. (Parasol Mushroom). Plants: *Allium ursinum* L. (Ransons), Mammals: *Sorex araneus* L. (Common Shrew) and *Apodemus sylvaticus* L. (Long-tailed Field Mouse).

Mr. L. Hugh Newman—*Kallima inachus* Boisd. (Lep. Nymphalidae) showing underside variation exactly imitating the different stages of incipient decay in a leaf.

Mr. R. E. R. Parsons—(1) A small collection of butterflies taken in the Forêt d'Armanvilliers at Ozior la Ferrière near Paris, 27.vi.57, consisting of male *Apatura ilia* Schiff. (three typical and two var. *cos* Rossi), male *Aporia crataegi* L., a female *Limenitis populi* L., and examples of both sexes of *Coenonympha arcania* L. It was noteworthy that the *Apatura ilia* Schiff. were found sitting about on the ground. It is necessary to reach this locality well before midday, and warm sunny weather seems to be essential to obtain this species in reasonable numbers. (2) A drawer of butterflies of the genus *Pantoporia* Hb.

(Nymphalidae) from various localities and altitudes in Assam, N.E. India.

Mr. C. John Pearce—*Limenitis camilla* L. ab. *seminigrina* Tutt captured in Donyland Wood near Colchester, Essex, 2.viii.56.

Mr. E. C. Pelham-Clinton—(1) British Lepidoptera: *Hepialus fusconebulosus* Deg. ab. *gallicus* Led., a series from Edinburgh, Midloth. and Argyll, 1952-7; *Palpita unionalis* Hb., five males and a female taken at light, Tresco, Scilly Isles, 4 to 5.vii.57; *Diasemia ramburialis* Dup., Tresco, at light, 4.vii.57; *Pyrausta perlucidalis* Hb., Wood Walton Fen, Hunts., at light, 23.vi.57; *Heterographis oblitella* Zell., Tresco, at light, 3.vii.57; *Aphantopus hyperantus* L. ab. *arete* Müll., three males and two females, Threepwood, Rox., 21.vii.57; *Maniola jurtina* L. ab. *cervinus* Froh., Tresco, 5.vii.57; *Callophrys rubi* L., an aberration having a pale band across the outer third of all wings on the upperside, and green colouring absent from the outer third of the forewings on the underside (Pl. I, fig. 8), Lephinmore, Argyll, 31.v.51; *Crocallis elinguaria* L., a series to show range of variation in the Scottish Highlands, Argyll, Inverness-shire and Angus, 1951-7; *Ortholitha chenopodiata* L. (*limitata* Scop.), dark coloured forms taken amongst otherwise typical populations, Scremerston, Northumb., 19.viii.56, and Speybridge, Inv., 4.viii.57; *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh., a well-marked race from Gordon, Ber., having many more dark strigulae than the usual Scottish forms, three males and three females, 1952-6; *Plusia ni* Hb., Portreath, Corn., 6.vii.57, at light; *Eupithecia castigata* Hb., melanic forms, Edinburgh, 1953-5; *E. sobrinata* Hb., melanic forms, Edinburgh, 28.vii.57; *Noctua* (*Triphaena*) *sobrina* Boisd., a series from Inverness-shire, August 1957; *Celaena leucostigma* Hb., a series of the small highland race from Argyll, Inverness-shire and Ross-shire, 1955-7; *Hyppa rectilinea* Esp., a series to show the north-south cline in the extent of dark markings from Inverness-shire, Perthshire, Argyll and Berwickshire, 1954-6; *Apamea assimilis* Doubl. (? s.sp.) aberration at sugar at 4,000 ft. on Braeriach, Inv., 12.vii.55, having the usual dark ground colour replaced by red; *Arctia caja* L., two aberrations, one showing increased dark markings on the forewings, Tresco, 29.vi.57, the other with the red colouring replaced by yellow, Thornham, Norf., 8.vii.57, both at light; *Spilosoma lubricipeda* L., a specimen from Tresco, having increased black spotting, and from Argyll with buff forewings; *Glyphipterix haworthana* Steph., Gordon, Ber., bred May 1956 from *Eriophorum vaginatum* L.; *Tinea arcuatella* Staint., Glen Affric, Inv., bred from *Fomes*, May 1955; *Myrmecozela ochraceella* Tengst., Rannoch, Inv., June 1951-6; *Argyroploce micana* Fröl., Port Appin, Argyll, July 1952; *Phalonia walsinghamana* Pierce, Port Appin, July 1954-6; *Leucoptera susinella* H.S., Aviemore, Inv., 29.vi.52; *Depressaria ciniflonella* Zell., Glen Affric, 4.iv.55; *D. atomella* Schiff. (*scopariella* Hein.), Tayport, Fife, bred from broom, August 1953; *Batia lambdella* Don., Findhorn, Moray, 5.viii.57; *Crocidosema plebeiana* Zell., Tresco, 4.vii.57; *Nothris congressariella* Braund, Tresco, 30.vi.57. (2) Lepidoptera associated with

Vaccinium vitis-idaea L. (Cowberry) all collected at Aviemore, Inv., 1951-4: *Nepticula weaveri* Staint.; *Lithocolletis junoniella* Zell., also from Black Mount, Argyll; *Argyroploce mygindana* Schiff.; *Eucosma ustomaculana* Curt.; *Coleophora glitzella* Hof.; *C. vacciniella* H.S.; *C. vitisella* Gregs.

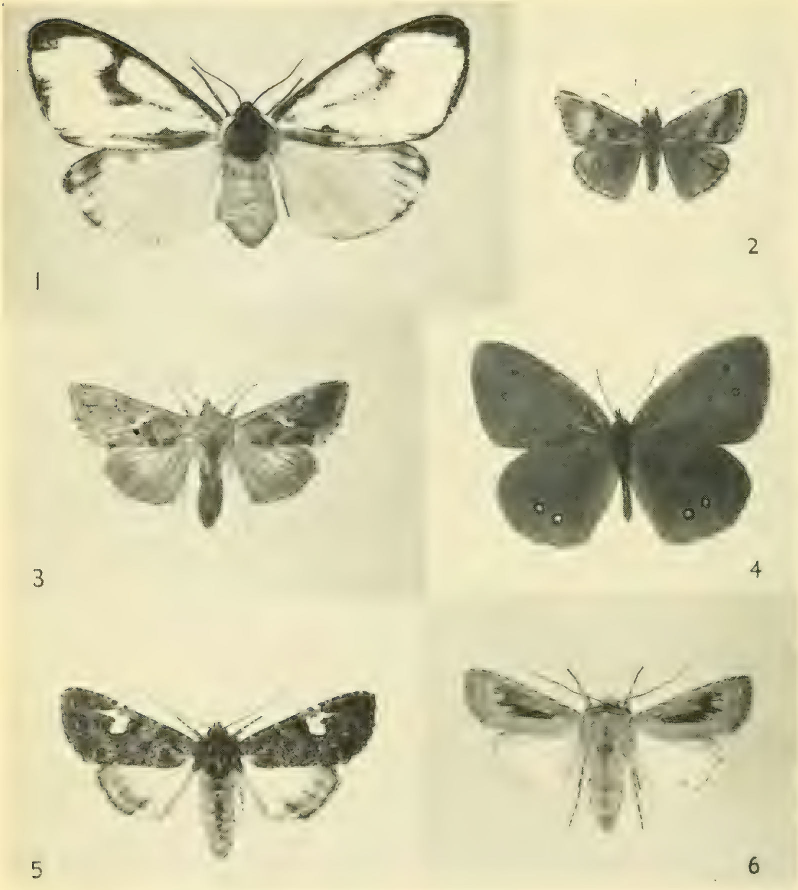
Mr. N. B. Potter—Aberrations of Rhopalocera taken during July and August 1957 in Sussex, Wilts. and Dorset, including: (1) *Maniola jurtina* L. ab. *pallidus* Froh. and a very small example; very small specimens of *Pieris rapae* L. and *P. napi* L.; *Lycaena phlaeas* L. ab. *suffusa* Tutt; *Polyommatus icarus* Rott. ab. *v-nigrum* B. & L.; *Lysandra bellargus* Rott. the underside ab. *furvescens* B. & L. (2) Aberrations of *Lysandra coridon* Poda. Uppersides: *semifowleri-margino* B. & L., *punctata* Tutt, *ultrapunctata* B. & L., *pulla* B. & L., an asymmetrical *inframarginata* B. & L., two colour aberrations, and *semisyngrapha* Tutt. Undersides: *parvipuncta* Rebel, an asymmetrical aberration with right hindwing very small; *postcaeca* B. & L.; two ab. *caeca* Courv.; two ab. *antidiscoelongata* B. & L.; ab. *post-sinis-transformis* B. & L. and ab. *glomerata* Tutt + *confluentiae* B. & L. (3) A teratological specimen of *Lysandra coridon* Poda with three right hindwings, the lower two being upside down and constituting an example of Bateson's law of reduplication of insect appendages (Pl. I, fig. 1). This law states that the reduplicated parts distal to the side of injury are triple. There is an original limb, the one nearer to the original limb being a mirror image of it (structurally a wing of the opposite side), while the one farther from the original limb is a mirror image of the first extra limb and is in secondary symmetry with it.

Mr. L. Price—A species of Lepidoptera (Eucosmidae) new to Britain, *Pammene aurantiana* Staud., taken on Rodborough Common, Glos., 31.vii.56; a similar specimen was taken at Studland, Dorset, 14.viii.56. This latter specimen is now in the British Museum, Nat. Hist.) (1957, *Ent. Rec.*, **69**: 205).

Mr. M. Pring—see Capt. R. A. Jackson.

Mr. A. W. Richards—(1) A series of each of the following Lepidoptera: *Dasychira pudibunda* L.; *Tethea or* Schiff., *Polyploca ridens* F., *Hydriomena furcata* Thunb., *Dysstroma truncata* Hufn., and *Cirrhia icteritia* Hufn. to show range of variation in the wild at Fleet, Hants. (2) Fourteen *Aglais urticae* L. reared from 3rd brood larvae in October 1957 at Fleet, in a greenhouse. The forms include abs. *nigra* Tutt or *nigrocaria* Hav. of varying degrees of development together with two most unusual, if not unique, melanics.

Mr. Austin Richardson—(1) Lepidoptera taken or bred, Scilly Isles, during 1957: a series of *Leucania unipuncta* Haw., including a melanic example, the second British record, and a blown larva, believed to be the first occasion on which fertile ova have been obtained in Britain; a specimen of *Leucania loreyi* Dup.; a series of *Cosymbia puppillaria* Hb., two taken April, one August, five bred July and six bred August, the bred specimens being much paler than the caught ones, with three blown larvae; four *Lithina chlorosata* Scop., bright with strongly contrasting transverse bars; 24 bred *Lasiocampa trifolii* Schiff., showing variation in the colouring of the pale sub-terminal band and including a pale female and another with xanthic forewing, also a blown larva; ten bred *Lasiocampa quercus* L., the females being very bright; four *Nola albula* Schiff.; a *Celama confusalis* H.S.; 23 *Agrotis puta* Hb., very bright and strongly marked; 19 *A. trux* Hb. s.sp. *lunigera* Steph., all very dark with the males approximating in colour to the females; *A. segetum* Schiff., an aberration showing black basal and terminal bands with a dark brown central area; 12 *Hadena conspersa* Schiff., taken and bred, somewhat darker than usual southern forms but not showing the yellowish suffusion found in some Cornish specimens; two *Diataraxia oleracea* L., bright and suffused with orange; five *Gortyna* (*Hydraecia*) *micacea* Esp., bright red, including three ab. *aurantia* Richardson; *Eupithecia castigata* Hb., an ochreous coloured specimen; *E. dodoneata* Guen., a very bright specimen with reddish markings; and *Diasemia ramburialis* Dup. (2) Series of 170 *Noctua* (*Triphaena*) *comes* Hb. ab. *sagittifer* Cockayne, bred during December from a wild Scilly Isles female. All specimens of this brood show the arrow-heads and loops to a greater or lesser extent. In some they are so faint as to be barely visible and in others very pronounced indeed. Many of the darker specimens have suffused hindwings and some have forewings more or less tinted with red. Fifteen *N. comes* brood B, selected from 220 examples bred from Scilly Isles, December 1956; these show prominent stigmata on a ground colour which varies from pink to greenish-grey (two only) and black (one only); about 50 of this brood show ab. *sagittifer* markings. Fifteen *N. comes*, brood C, selected from 100 examples bred from Scilly Isles, showing darkened ground colour, purple-brown inclining to reddish, through which the ab. *sagittifer* markings show. The darkened specimens form about 30% and ab. *sagittifer* is present in about 70% of this brood. One *N. comes* ab. *sagittifer* Cockayne ab. *rufa* Tutt, bred from wild larva, Scilly Isles. (3) Ten *Cleora rhomboidaria* Schiff., bright and well marked, bred from wild larvae, Scilly Isles; 13 *Leucania impura* Hb., showing considerable brown areas on hindwings, bred from wild larvae, Scilly Isles; ten *Euxoa tritici* L., a very pretty bright form, Scilly Isles; eight *E. obelisca* Schiff., dark, Scilly Isles; seven *Eumichtis lichenea* Hb., a race showing prominent stigmata, Scilly Isles; 13 *Hadena caesia* Borkh., bred from the Isle of Man, with a blown larva; eight *Lithophane leautieri* Boisd. (*lapidea* Hb. auct. nec Hb.), five taken and three bred *ab. ovis*, with two blown larvae, Isle of Wight, the larvae started to hatch at the end of January and the first moth emerged in June; ten *Cucullia absinthii* L., some rather dark examples bred from Yorks.; six *Amathes agathina* Dup., including one bright red and one black form, Merioneth; six *Celaena haworthii* Curt., Merioneth; 19 *Amathes castanea* Esp. (*neglecta* Hb.), including a bright pink aberration, the rest tinged with pink in varying



[*Photograph by W. H. T. Tams*]

ANNUAL EXHIBITION, 26th October 1957.

1. *Arctia villica* L. female aberration (S. Coxey). 2. *Erynnis tages* L. teratological specimen (B. F. Skinner). 3. *Plusia gamma* L. aberration (P. J. Gent). 4. *Aphantopus hyperantus* L. aberration (A. D. A. Russwurm). 5. *Melanchria persicariae* L. aberration (B. R. Baker). 6. *Agrotis exclamationis* L. aberration (C. H. Dixon).

degrees, Merioneth; *A. triangulum* Hufn., an obsolescent aberration, Glos.; four *Apamea sordens* Hufn., a pinkish aberration from Glos. and three from Yorks., including one very dark; four *Hadena thalassina* Hufn., from Yorks., Staffs. and Glos., showing variation; four *Spilosoma lubricipeda* L., including one with short basal streaks, Glos.; a specimen of *Harpyia bicuspis* Borkh., Glos., a new county record; *Agrotis puta* Hb., an aberration with the dorsal half of the forewings obsolete, Glos.; *A. ipsilon* Hufn., an aberration with a pronounced post-median band, Caer.; *Orthosia stabilis* Schiff., an obsolescent reddish aberration, Glos.; *Xylocampa areola* Esp., two aberrations showing dark median bands in which the stigmata stand out strongly, Caer.; *Mamestra brassicae* L., a pale variegated aberration, Glos.; *Scopula marginepunctata* Goeze, an aberration having the basal and median areas of all wings suffused and showing a very pronounced sub-terminal line, Caer.; *Ennomos quercinaria* Hufn., an F.1 brood of 13 from Glos. female, showing banded aberrations and colour variation; *Argynnis euphrosyne* L., two banded aberrations, Worcs. (4) Four living larvae of *Leucania unipuncta* Haw., in their last instar, bred *ab ovis* Scilly Isles.

Mr. A. D. A. RUSSWURM—*Euphydryas aurinia* Rott., 16 specimens showing range of variation including one female major aberration with cream markings extending to base of all wings, Dorset, June 1957; *Aphantopus hyperantus* L., one female ab. *lanceolata* Shipp, one male slightly deformed with markings indistinct (Pl. II, fig. 4), New Forest, Hants.; *Maniola jurtina* L., two male aberrations showing similar characteristics to ab. *transformis* (*Proc. S. Lond. ent. nat. Hist. Soc.*, **1948-9**: 103); *Lysandra bellargus* Rott., two female ab. *ceronus* Esp., one male underside ab. *caeca* B. & L., Dorset, June 1957; *L. coridon* Poda, one male underside, left forewing ab. *striata* Tutt, right *caeca* Courv.; *Ochlodes venata* Br. & Grey, typical male and female for comparison with male and female blackish-brown form, New Forest.

Dr. E. SCOTT—A series of *Coenonympha tullia* Müll, a butterfly whose area of distribution circles the globe, showing races from Divonne, French Jura; Mont Barry, Switzerland; Virton, Belgian Ardennes; Rannoch, Scotland; the Lancashire and Shropshire mosses; S.W. Ireland; Finland and British Columbia. The eastern European, Siberian and N. American forms tend to be small. Subspecies *philoxenus* Esp. is by far the most striking and distinctive, is restricted to a few mosses and has been isolated over a long period of time.

Mr. B. F. SKINNER—Some Lepidoptera taken during the last two seasons. A male and two female *Eustroma reticulata* Schiff., netted flying at dusk over *Impatiens noli-me-tangere* L. (Yellow Balsam), Windermere, Westmor., 28.vii.57; three *Phothedes captiuncula* Treit., caught during the day at Arnside Knott, N. Lancs., 31.vii.57; *Leucania albipuncta* Schiff., taken at sugar, Sidmouth, S. Devon, 8.ix.56; *L. putrescens* Hb., at mercury vapour light, Sidmouth, 4.viii.57; *Plusia festucae* L., at mercury vapour light, Meathop Moss, N. Lancs., 24.vii.57; a female *Herse convolvuli* L., taken at dusk over *Nicotiana affinis* T. Moore, at Sidmouth, 8.ix.56; a teratological specimen of a male *Erynnis tages* L., with three antennae (Pl. II, fig. 2), Mickleham, Surrey, 19.v.57; *Caradrina ambigua* Schiff., in mercury vapour trap, Boxhill, Surrey, 17.ix.56; *Coenonympha tullia* Müll., Meathop Moss, 24.vii.57; three *Erebia aethiops* Esp., Arnside Knott, 31.vii.57; four *Melitaea athalia* Rott., caught in Hadleigh Woods, Essex, 26.vi.57; four *M. cinxia* L., Niton, I.o.W., 1.vi.57; two male *Thecla betulae* L., bred from larvae beaten from *Prunus spinosa* L. (Sloe), Chiddingfold, Surrey, 24.v.57; two *Strymonidia w-album* Knoch, reared from larvae from *Ulmus glabra* Huds. (Wych Elm) at Watford, Herts., 14.v.57.

Mr. S. Gordon Smith—Aberrations of *Arctia caja* L. Unless otherwise stated these aberrations have been named and described by the exhibitor; *s-signatum*, *lamprogenys*, *catarryta*, *exotica*, *osta*, *olivaceosuffusa*, *leucorhabda*, *fuscorhabda*, *ditta*, *pelodes*, *tigrina*, *ustramenisca*, *paliscia*, *prosopia*, *aphenges*, *melanolimbata*, *flavirosea*, *pentapunctata*, *radiata* Gramann and *nigropennalis* Stättermayer. In addition a number of asymmetrical specimens including a somatic mosaic, and a male example with normal wings on the left side and only the hindwing with elongate markings on the right side, the forewing being absent. Also six specimens with wings narrow in comparison with normal wings. All the above were bred during 1955, 1956 and 1957.

Mr. W. H. Spreadbury—Nature photographs and fungi.

Mr. H. D. Swain—(1) Five cases showing examples of mimicry in African and S. American butterflies. (2) Two cases showing the evolution of the genus *Agrias* from the related genus *Prepona*, from various S. American states. The *Agrias* are of exceptional rarity, and present some interesting forms. (3) A case showing protective resemblance, sexual dimorphism, seasonal dimorphism and parallel evolution. (4) Two cases of Orthoptera collected in the South of France during August and September 1957, mostly determined by Dr. D. R. Ragge of the British Museum (Nat. Hist.). (5) Water colour drawings of the British Orthoptera and British Moths for illustrating "British Orthoptera" and "Moths of the British Isles" respectively.

Miss B. A. Thorn—(1) 16 species of butterflies from about ½ acre of rocky land at Les Tines (3,545 ft.), Chamonix, Haute Savoie, France, 1 to 10.vii.52: *Pararge maera* L., *Erebia ligea* L., *Argynnis paphia* L., *A. aglaia* L., *A. cydippe* L., *A. niobe* L., *A. niobe* var. *eris* Meig., *Boloria dia* L., *Melitaea athalia* Rott. s.sp. *pseudathalia* Reverdin, *M. dictynna* Esp., *Maculinea arion* L., *Heodes virgaureae* L., *H. alciphron* Rott., *H. dorilis* Hufn., *Parnassius apollo* L., *Aporia crataegi* L., *Carterocephalus palaemon* Pall. (2) 16 more species from the Chamonix Valley, Haute Savoie, June 1935 and July 1939, common everywhere from 3,000 to 6,500 ft.: *Erebia stygne* Ochen., *Coenonympha satyrion* Esp., *Boloria amathusia* Esp., *Cyaniris semiargus* Rott., *Papilio machaon* L. s.sp. *gorganus* Fruhst. In Chamonix (3,400 ft.): *Argynnis* (*Clossiana*) *euphrosyne* L., *Nymphalis antiopa* L. (in June, after hibernation), *Heodes chryseis* Bergstr. (*hippothöe* L.), *Leptidea sinapis* L., *Euchloë* (*Anthocharis*) *cardamines* L. (dwarf), Col des Montets (4,797 ft.), *Pararge hiera* F., *Eumedonia chiron* Rott., *Parnassius phoebus-sacerdos* Stich. (*delius* Esp.). Le Tour (4,800 ft.): *Erebia ceto* Hb., *E. goante* Esp. Planpraz (6,765 ft.): *Erebia epiphron* Knoch. (3) Lepidoptera collected in 1936 by Miss P. Hargreaves in Shanhaikwan, China. (4) Thirteen transparencies of British Rhopalocera taken on Ferrania colour film and processed at home. (5) *Aglais urticae* L. ab. *alba* Raynor, caught indoors 10.vii.42; *Limenitis camilla* L. ab. *nigrina* Weym., 30.vii.41; both from Broxbourne, Herts.; *Argynnis selene* Schiff., Savernake Forest, Wilts., 2.vi.57, an asymmetrical female with right hindwing smaller than left.

Miss Vere Temple—A water colour of the life history of *Lasiocampa quercus* L., showing larvae before and after hibernation, also foodplants and moths. Larvae were obtained from ova from a female found at Stubhampton Bottom, Dorset, July 1956. Also a water colour of the life history of *Philudoria potatoria* L., showing larvae before and after hibernation, pupa in cocoon and moths. Larvae were obtained from ova from a female found at Zig-Zag Mill, Shaftesbury, Dorset, July 1956.

Mr. D. W. Thorpe-Young—*Maniola jurtina* L., various forms of undersides including two from Manorbier, Pemb., with enlarged spots plus two extra smaller spots. *M. tithonus* L., heavily spotted aberrations from N. Cornwall and Manorbier; the Pembrokeshire form is much darker than the usual form found in the Home Counties. *Aphantopus hyperantus* L., various undersides showing variation from no spots to ab. *lanceolata* Shipp taken near Bude, Corn. *Coenonympha pamphilus* L., several undersides showing various patterns; also one upperside with extra spot, this insect was found amongst a lot of set specimens in a cabinet bought from the late T. L. Barnett.

Mr. Trevor Trought—A drawer of microlepidoptera from Jordan, the majority from the Jordan Valley at some 200 metres below sea-level. Many of these have been identified by Dr. N. G. Amsel and are recorded in *Beiträge zur naturkundlichen Forschung in Sudwestdeutschland*, **15** (1): 1956. Also a number of Jordan micros which have not yet been identified with certainty, possibly not even named.

Mr. R. Tubbs—A series of African *Charaxes*.

Mr. M. W. F. Tweedie—Pen drawings of Malayan butterflies: *Euploea diocletianus* F.; *Euthalia dirtea dirteana* Corbet; *Parathyma nefte subrata* Moore. Pen drawings of British moths: *Griposia aprilina* L. at rest on lichened oak bark, to show cryptic pattern; *Phlogophora meticulosa* L., *Tiliacea aurago* Schiff. and *Cirrhia icteritia* Hufn. feeding on ivy blossom. An album of photographs of Malayan insects, mainly Lepidoptera.

Mr. S. Wakely—Over 200 species of Lepidoptera captured or bred during the current season. (1) From Sandwich, Kent (the result of a day trip on 21st July): *Eilema pygmaeola* Doubl.; *Mesotype virgata*

Hufn., bred from *Galium verum* L.; *Homoeosoma cretacella* Rossl., bred from *Senecio erucifolius* L.; *Nyctegretis achatinella* Hb.; *Oxyptilus distans* Zell.; *Mniophaga senectella* Zell.; and *Nepticula intimella* Zell., bred from *Salix repens* L. (2) From Dungeness and Lydd district of Kent: *Dasychira fascelina* L., *Nola albula* Schiff., *Celama trituberculatus* Bosc. (*aerugula* Hb.), *Tethea ocularis* L., *Spilosoma urticae* Esp., *Eilema pygmaeola* Doubl., *Hadena albimacula* Borkh., *Calophasia lunula* Hufn., *Aplasta ononaria* Fuessl., *Schoenobius gigantellus* Schiff., *Dioryctria hostilis* Steph., *Euzophera neophanes* Durr., *E. marmorea* Haw., *Acrobasis tumidella* Zinck., *Crambus salinellus* Tutt, *Platytes alpinellus* Hb., *Eucosma augustana* Hb., *E. nanana* Treits., *Laspeyresia funebrana* Treits., *Aristotelia palustrella* Dougl., *Phthorimaea leucomelanella* Zell., *Sophronia semicostella* Hb., *Brachmia gerronella* Zell., *Batia lambdella* Don., *Depressaria badiella* Hb., *D. ultimella* Staint., bred, *Lithocolletis scopariella* Zell., *Ethmia bipunctella* F. and *Monopis crocicapitella* Clem. The majority of these were taken at mercury vapour light. (3) From various localities; *Colobochyla salicalis* Schiff., Ham Street, Kent; *Chlorissa viridata* L., bred, Studland, Dorset; *Nephopteryx obductella* Zell., bred, Halling, Kent; *Alucita spilodactyla* Curt., bred, Freshwater, I.o.W.; *Choreutis punctosa* Haw., bred, Hog Wood, Sussex; *Eucosma rubiginosana* H.S., Horsell, Surrey; *Isophrictis tanacetella* Schrank., bred from *Tanacetum vulgare* (Tansy), Medway Valley, Kent; *Blastobasis decolorella* Woll., Dulwich, London; *Depressaria ciliella* Staint., bred, Bookham, Surrey; *Gracillaria populetorum* Zell., bred, Ockham, Surrey; and *Eidophasia messingiella* F.R., bred from *Cardaria* (*Lepidium*) *draba* (L.) Desv., Stanford-le-Hope, Essex.

Mr. D. H. WALKER—Lepidoptera as follows: two male *Maniola jurtina* L. set as undersides, one with a very large eye spot and no pupil, the other with the eye spot almost non-existent; a female *Lysandra bellargus* Rott. ab. *ceronus* Esp.; a series of *Coenonympha pamphilus* L. including two specimens with an additional spot on each upper hindwing, one specimen with two additional spots on each upper hindwing, three specimens with bi-pupilled eyes on the under forewings, two specimens with two separate eyes on the under forewing, three specimens with additional eyes on each underside forewing, one specimen with two additional separate eyes on the underside forewing, five specimens showing variation in markings among which was one aberration showing "semitransformis" characteristics (see *Proc. S. Lond. ent. nat. Hist. Soc.*, **1948-9**: 80-120) having three banded wings and one wing immaculate, set as an upperside, one specimen set as underside with heavily marked forewings and homoeosis on both hindwings; a female *Colias croceus* Fourc. (*edusa* F.) aberration with deep green hindwings on upperside; a female *Lysandra coridon* Poda ab. *alba* B. & L. with underside ground colour replaced by white on all four wings.

NORMAN A. WATKINS—British Rhopalocera taken during 1957: (1) *Argynnis selene* Schiff., a series of 42 males and 21 females from S.

Cornwall, mostly from an exposed and isolated valley. This colony has been worked from time to time at many years' interval, and its characteristics appear to remain constant. The average size of both the sexes is smaller than that of other normal English *A. selene*. The males have a strong tendency towards ab. *margo-striata* Froh., especially on the hindwings; the extreme form has been taken here. Females tend to be darker than those from elsewhere. The series includes: a black banded male; 12 males showing tendency to ab. *margo-striata* Froh.; one male ab. *margo-striata* forewings only; two females and eight males with additional black scaling tending towards, or forming an "I-nigrum" marking at base of forewings; two males with mainly black lunules to all wings; four males and one female with white or yellow patches in centre of forewings; all taken in June. (2) *Aglais urticae* L., an asymmetrical example, possibly a gynandromorph, bred September 1956. (3) *Maniola jurtina* L., all taken Wilts. during August; a male ab. *partimtransformis* Leeds, with small, white patches on both forewings and one hindwing; another ab. *partimtransformis* with white edge to left hindwing and light patches on margins of left forewing and right hindwing; a male ab. *commaculo* Leeds. (4) *Agapetes galathea* L., a male with bleached patch on right forewing, Somerset, June 1957. (5) *Coenonympha pamphilus* L., a male ab. *transformis* Leeds; two males and one female ab. *margo-transformis* Leeds; all Wilts., 1957. (6) *Erynnis tages* L., a second brood, 7.viii.57, male aberration with both transverse bands of spots on the forewings elongated into stripes and joined at the bottom to form a broad horizontal band. (7) *Hesperia comma* L., a female melanic aberration with a typical female for comparison. (8) *Lysandra coridon* Poda, a series of 43 taken in Wilts. and Somerset, 1957 (all names Bright and Leeds, except where otherwise stated). Male upperside aberrations: *marginata* Tutt, *inframarginata*, *transformis*, *ultrapunctata*, *fowlerimargino*, *semifowleri*, *metallica*, *viridescens* Tutt, *ultraviridescens*, *lavendula-suffusa*, *caerulea* Neustetter, *lavendula+suffusa* Tutt+*marginata* Tutt, *anti-atrescens* + *ultra-albocrenata* + *metallica*. Male underside aberrations: *anticaeca*, *postcaeca*, *grisea*. Female upperside aberrations: *partimtransformis*, one of which is streaked with buff on one forewing, one has thinly scaled patches on all wings, two have scaleless patches on one forewing and two have thin streaks of scales on one or more wings; *infrasemisyngrapha*, extreme *ultrapunctata*, almost *fowleri* South. Female underside aberrations: *postcaeca*, *anticentrijuncta*, *lunaextensa*. (9) *Polyommatus icarus* Rott., a male with all spots elongated to form thin streaks, a male similar to the ab. *confluentiae-glomerata* B. & L. of *Lysandra coridon* Poda, and a female similar to the ab. *confluentiae* B. & L. of *L. coridon*. (10) *Lysandra bellargus* Rott., a series of six being examples of a continuing aberration from Wilts. The undersides are dark and suffused. In both sexes the typically bright red lunules are dark brick-red or the colour of dried blood. Male uppersides are dull silvery blue with brownish body and hairs. An extreme brownish-silvery-blue male was shown with a typical example for comparison. Also a male similar to the ab. *digitata* Courv. of *L. coridon*, Wilts., September 1957.

Mr. A. S. **Wheeler**—A mixed gynandromorph *Argynnis paphia* L., mainly male but with female markings on the left forewing. Caught during the field meeting at Chiddingfold, Surrey, 28.vii.57.

Mr. A. J. **Wightman**—see Mr. G. M. **Haggett**.

Mr. R. J. **Woodward**—*Colias croceus* Fourc., a female with cream ground colour and darkly suffused hindwings, taken 23.viii.55 at Shoreham, Kent; *Gonepteryx rhamni* L., a gynandromorph taken at Eynsford, Kent, 3.ix.55, the left forewing showing marked female colouration on the yellow of the male; *Argynnis selene* Schiff., an aberration with underside showing rayed marks instead of spots, taken in Surrey, June 1954; *Maniola jurtina* L., a minor aberration with much reduced eye spots on the forewings, taken in Surrey, 4.vii.55; *Coenonympha pamphilus* L., three examples taken in Surrey during May and June 1956, one showing reduced eye spots on the forewing, another with heavily suffused upperside apparently slight melanism, the third with a broad dark border to the hindwings; *Lysandra coridon* Poda, 23 males taken in Surrey during August 1954 showing degrees of ab. *caeca* Courv., a female from Hertfordshire showing slight streaking of the spots on the forewing, taken 8.viii.56; *Lysandra bellargus* Rott., a female from Dorset, 8.vi.57, showing almost complete blue colouration.

The **Baron de Worms**—(1) British butterflies taken during 1957: *Pieris napi* L., a series taken on the Isle of Canna, Hebrides, in late April, showing the males with absence of spots on the forewings and the females with a distinct smokiness on the uppersides; *Callophrys rubi* L., a short series from the Isle of Canna showing substantial white spotting on the underside; *Maculinea arion* L., a short series taken in N. Devon in early July; *Plebejus argus* L., showing males and females of eight series to illustrate varieties of this species in the British Isles —the series exhibited include chalk forms from Swanage, Dorset; the Hampshire Downs and the Kent Downs; Heathland forms from the New Forest, Hants.; the Suffolk heaths and the mosses of Westmorland (f. *masseyi* Tutt); also the limestone form (*caernensis* Thompson) from the Great Orme Head; and a Sandhill form from S.W. Cornwall. (2) Selected series of moths taken and bred in the British Isles during 1957: *Odontosia carmelita* Esp., Woking, Surrey; *Agrotis trux* Hb., S.W. Cornwall; *Hadena conspersa* Schiff., Surrey Downs, Dungeness, Kent, Cornwall and the Isle of Canna; *Arenostola morrisii* Dale (*bondii* Knaggs), Folkestone, Kent; *A. pygmina* Haw., Rannoch, Inv. area; *Calophasia lunula* Hufn., bred from Dungeness; *Aporophyla nigra* Haw., Scottish Highlands; *A. lutulenta* Schiff., Blair Atholl, Perthshire; *Celaena leucostigma* Hb. f. *fibrosa* Hb., Rannoch area; *Cerastis rubricosa* F., Isle of Canna; *Orthosia gracilis* Schiff., bred from Killarney, Ireland; *O. gothica* L., Isle of Canna; *Anchoscelis helvola* L., Aviemore, Inv.; *Xylocampa areola* Esp., Isle of Canna; *Cirrhia ocellaris* Borkh., Surrey; *Mesotype virgata* Hufn., Sandwich, Kent; *Chloroclysta siterata* Hufn., Scotland; *C. miata* L., Rannoch and Aviemore; *Thera firmata* Hb., Aviemore; *Nyssia zonaria* Schiff., Isle of Canna; *Apoda avellana* L., Woking area. (3) Scarce species and varieties of British Lepidoptera taken in the British Isles at the end of 1956 and during 1957; *Stauropus fagi* L., a dark male with the cross-lines on the forewings absent, Virginia Water, Surrey; *Drymonia dodonaea* Schiff. (*trimacula* Esp.), a dark example with narrow cross-lines on the forewings, Woking, Surrey; *Colocasia coryli* L. f. *melanotica* Haverkampf, a specimen from the Chilterns; *Agrotis clavis* L., a semi-melanic example, Woking; *Ammogrotis lucernea* L., a very dark male, Cornwall; *Bombycia viminalis* F., a very melanic example with dark hindwings, Rannoch area, September 1957; *Orthosia incerta* Hufn., a male with heavy bands and cross-lines on the forewings, Isle of Canna; *Cosmia trapezina* L., a very pale specimen with the cross-band hardly showing, Woking; *Lithophane leautieri* Boisd., two examples from Eastbourne, Sussex, October 1956; *Abrostola triplasia* L. (*tripartita* Hufn.), a melanic example from Surrey; *Plusia gamma* L., a small specimen with the Y-mark reduced, Woking, May 1957; *Thera firmata* Hb., a female with very melanic forewings and dusky hindwings, Aviemore, Inv.; *Xanthorhoë quadrifasciata* Clerck, two specimens with heavy forewing bands, Woking; *Opisthograptis luteolata* L., a female with the brown speckling on the wings absent, Virginia Water, Surrey; *Coenocalpe lapidata* Hb., four males taken near Rannoch, September 1957; *Cleora rhomboidaria* Schiff., a melanic male, Surrey Downs. (4) Four cases containing a selection of 58 species of butterflies taken near Bulawayo, the Victoria Falls and Elisabethville and Lake Kivu in the Belgian Congo between 11.vii and 12.viii.57. This series includes the rare species *Acraea welwitschii* Rogenhofer f. *alboradiata* Aurivillius and the Lycaenid *Hypolycaena jacksoni* Bethune Baker.

14th NOVEMBER 1957.

The President in the Chair.

Mr. Peter Hurworth was declared elected a member.

EXHIBITS.

The **President**—An example of *Carabus* (*Coptolabrus*) *elysii* Thoms. (Col. Carabidae) from Nanking, N. China. The species is confined to the Chinese mainland.

Mr. **Alasdair Aston**—A specimen of *Pammene aurantiana* Staud. (Lep. Eucosmidae) taken at Stowmarket, Suffolk on the road between Stowmarket and Onehouse during the afternoon of 10.viii.51.

Mr. **R. Eldon Ellison**—A short series of *Lithophane leautieri* Boisd. (Lep. Noctuidae) with a specimen of *L. lapidea* Hb. from Syria for comparison.

Mr. D. P. L. Matthews—Photographs taken at the Society's Annual Exhibition.

Mr. M. Harrison-Gray—A larva of an African Saturniid moth ex Rhodesian stock, *Gynanisa maia* Klug.

Mr. S. Wakely—(1) Two examples of *Coleophora clypeiferella* Hofm. (Lep. Coleophoridae) one of which was taken by the exhibitor at Camberwell, London, 11.viii.53, and the other by Mr. G. H. Youden at Dover, Kent, 24.vii.57. Both specimens came to light and are the only specimens yet recorded from Britain. (2) Specimens of *Cataplectica profugella* Staint. (Lep. Coleophoridae) from his collection together with pupae of the same micro taken during the Society's Chipstead field meeting on 5.x.57, when the larvae were found in numbers feeding in the seeds of *Pimpinella saxifraga* (L.) (Umbelliferae). (3) An example of the beetle *Apion limonii* Kirby (Curculionidae) taken at Yarmouth, I.o.W., during October.

Mr. B. Goater—A collection of Heterocera made during September 1957 on the Costa Brava, Spain, by a non-entomological friend, Mr. L. H. Guidon. The moths were collected at random, mostly at light, and included about 80 specimens of 38 species, many of them well-known migrants to Britain. The assistance of Messrs. T. G. Howarth and D. S. Fletcher in identifying some of the species was gratefully acknowledged.

Mr. A. E. Gardner—The great Australian stick insect, *Acrophylla titan* Macl. (Phasmidae), taken by Mr. F. G. T. Smith.

Mr. F. D. Buck—*Trictenotoma davidi* Deyr. (Col. Trictenotomidae) from China. A heteromerous beetle with the facies of a Prionid.

COMMUNICATIONS.

Dr. C. G. M. de Worms said he had recently been working a lamp in the Ipswich area of Suffolk. *Ptilophora plumigera* Schiff. (Notodontidae) began to arrive at 6 p.m. and came in a steady stream until 9 p.m., there was a run of *Brachionycha sphinx* Hufn. (Noctuidae) at 8 p.m., *Poecilocampa populi* L. (Lasiocampidae), *Erannis aurantiaria* Schiff., *Operophtera brumata* L. and *Oporinia dilutata* Schiff. (Geomedridae) were also present. On the 31st October he had taken a completely black example of *Plusia gamma* L. (Lep. Plusiidae) in his trap at Woking, Surrey.

Some members reported very little about after the recent storms.

Mr. R. Eldon Ellison reported that *Lithophane leautieri* Boisd. (Lep. Noctuidae) had started coming to light on the 3rd October this year and went on to the 29th. Thirty-two specimens had been taken in all, with the maximum of four in one night. There were only three or four unfavourable nights during this period when none came at all, and in his opinion the species seems to be fairly well established in the Eastbourne area of Sussex.

A discussion took place on the Annual Exhibition.

28th NOVEMBER 1957.

The PRESIDENT in the Chair.

The following new members were declared elected: Miss Anne Phillips, Maj. F. L. Johnson, Messrs. R. F. Richards, C. J. Pearce, R. C. Goodden, H. G. Langdale-Smith, R. H. A. Stewart, D. J. L. Agassiz, W. N. Beesley, A. E. Aston and P. H. Lawson.

EXHIBITS.

The PRESIDENT—A pair of the Carabid beetle *Nebria dilatata* Dej., peculiar to Tenerife, Canary Islands.

Mr. A. E. GARDNER—A female example of *Pelmatosilpha marginalis* Brunne (Dictyoptera, Blattidae) taken in a fruiterer's shop at Feltham, Middx., 10.xi.57, by Mr. E. W. Classey.

COMMUNICATIONS.

Mr. B. A. COOPER, B.Sc., A.R.C.S., F.R.E.S., gave a talk on "Nematology" which was illustrated by lantern slides. The talk was followed by a discussion of many aspects of the subject.

12th DECEMBER 1957.

The PRESIDENT in the Chair.

Mr. G. STOUGHTON-HARRIS was elected auditor for the members.

EXHIBITS.

The PRESIDENT—*Labidostomis taxicornis* F. (Col., Chrysomelidae) from northern Spain.

Dr. C. G. M. DE WORMS—An example of *Plusia gamma* L. (Lep., Plusiidae) with completely black forewings.

Mr. BARRY GOATER—Butterflies from the Costa Brava area of Spain, taken during September 1957, by Mr. L. H. Guidon.

COMMUNICATIONS.

A discussion took place on the determination of the *Melitaea* in Mr. Goater's exhibit.

Mr. R. ELDON ELLISON said he had been breeding *Cosymbia puppillaria* Hb. (Lep. Geometridae) and understood the species fed up more rapidly if kept warm. His experience confirmed that heat speeded up development. The larvae, obtained in the middle of September, were kept at room temperature and fed up slowly, pupating in the middle of November. After pupation the cage was put near a radiator. Within 48 hours the first imago emerged, and all emerged during the period 1st to 11th December.

Mr. J. H. P. SANKEY, B.Sc., gave a talk, "The Natural History of Harvest Spiders", illustrated by lantern slides. The talk was followed by a number of questions dealing mainly with distribution, breathing, mating behaviour, colouration and length of life.

9th JANUARY 1958.

The PRESIDENT in the Chair.

Mr. Donald Jenner was declared elected a member.

EXHIBITS.

Mr. P. N. CROW—An example of *Conistra vaccinii* L. (Lep. Noctuidae), with a peculiarly coloured left forewing, taken at sugar in Herts., 20.x.56.

Mr. & Mrs. T. G. HOWARTH—A specimen of *Arctia caja* L. (Lep. Arctiidae), of an F.2 generation, bred 1.xii.57, showing homoeosis on both hindwings, the markings being very nearly symmetrical.

Mr. J. L. MESSENGER—The moth *Pammene aurantiana* Staud. (Eucosmidae), taken at mercury vapour light at Weybridge, Surrey, 7.vii.57.

Mr. S. WAKELY—A series of six *Leucania unipuncta* Haw. (Lep. Noctuidae), bred from seven larvae received on 26.x.57 from Mr. R. M. Mere who had obtained specimens of the moth from the Scilly Isles. They were kept at a high temperature, fed on *Agropyron repens* (L.) Beauv. (Couch-grass), and pupated in the earth a few days later. The first moth emerged on the 14th November and on the 17th the last emerged, thus they could have been in the pupa stage scarcely a fortnight. One specimen was badly deformed, the other six perfect.

Mr. A. E. GARDNER—Series of the following insects taken by himself and Mr. E. W. Classey on Madeira, 8-21.xii.57: *Sympetrum nigrifemur* (Selys.) (Odon.), the endemic dragonfly, Palheiro Ferreiro; *Calabius heeri* Woll. (Col.), from the rock pools on the shore at Gorgulho, the type locality; *Mogoplistes squamiger* (Fisch.) (Saltatoria), under stones above the high water mark, Funchal harbour; *Gryllus bimaculatus* (Deg.) and *Gryllullus hispanicus* (Saltatoria); the egg pod of the Praying Mantis, *Mantis religiosa* L. (Dictyoptera); *Loboptera decipiens* (Germ.) (Dictyoptera); and the larvae of *Celerio euphorbiae* L. (Lep.), from a hillside above Gorgulho. The exhibits were accompanied by photographs illustrating the various types of habitats.

COMMUMICATIONS.

Mr. R. F. HAYNES said he had recently received a larva in a tomato purchased in Dorking, Surrey, and imported from the Canary Islands, which had now pupated. He asked about the identity and it was generally agreed the insect would be *Heliothis armigera* (Hb.), (Lep. Noctuidae).

Mr. SPERRING read a note on his experiences in breeding *Gonodontis bidentata* Clerck (Lep. Geometridae) during the period 1953-56. In his note he mentioned moths emerging in October, November and December without forcing and enquired if any member had encountered the moth in the wild state during late Autumn or Winter.

Dr. C. G. M. de Worms said he had never met the moth at that time of the year in the field.

Slides were shown by several members, mainly of collecting trips.

23rd JANUARY 1958.

86th ANNUAL MEETING

(with which was combined the Ordinary Meeting).

Dr. B. P. Moore, F.R.E.S., President, in the Chair.

The minutes of the Annual Meeting held on 24th January 1957 were read, confirmed and signed.

The Hon. Treasurer, Mr. J. L. Henderson, presented his report and accounts and moved their adoption. Seconded by Mr. H. D. Swain and carried.

The Secretary, Mr. Barry Goater, B.Sc., read the Council's report and moved its adoption. Seconded by Mr. R. Eldon Ellison and carried.

The President declared the following Officers and Ordinary Members of Council elected for 1958:—*President*: N. E. Hickin, B.Sc., Ph.D., F.R.E.S. *Vice-Presidents*: B. P. Moore, B.Sc., D.Phil., F.R.E.S.; F. T. Vallins, A.C.I.I., F.R.E.S. *Treasurer*: J. L. Henderson. *Secretary*: B. Goater, B.Sc., F.R.E.S. *Editor*: F. D. Buck, A.M.I.Ptg.M. *Curator*: A. E. Gardner, F.R.E.S. *Librarian*: T. R. Eagles. *Lanternist*: L. Christie. *Ordinary Members of Council*: J. D. Bradley, F.R.E.S., R. Eldon Ellison, F.R.E.S., D. Leston, F.Z.S., F.R.E.S., Lt. Col. W. B. L. Manley, F.R.E.S., R. M. Mere, F.R.E.S., A. H. Sperring, W. H. Spreadbury, R. S. Tubbs, O.B.E., F.R.I.B.A., R. W. J. Uffen, F.R.E.S., and S. Wakely.

EXHIBITS.

The President—A case of Cicindellid beetles to support his Address, containing representative species from various parts of the world, a larva and a hymenopterous parasite.

Mr. A. E. Gardner—The following Dermaptera from Madeira, taken by himself and Mr. E. W. Classey, 8-21-xii.57: *Anisolabis maritima* (Geré), Funchal Harbour, *A. annulipes* (Lucas), Palheiro Ferreiro, and *Labidura riparia* (Pall.), Porto Santo.

COMMUNICATIONS.

The President read his Address and, vacating the Chair, inducted the new President, Dr. N. E. Hickin, F.R.E.S.

Dr. Hickin thanked the meeting for the honour they had done him and moved a vote of thanks to Dr. Moore combined with a request for permission to publish his Address. Carried by acclamation.

In his reply Dr. Moore gave permission for the Society to publish his Address.

A vote of thanks to the Vice-Presidents, Officers and Council was moved by Mr. R. Eldon Ellison, and seconded by Mr. R. W. J. Uffen, who also replied for the Council.

The Treasurer proposed a vote of thanks to the Auditors which was carried by acclamation. Mr. S. N. A. Jacobs replied.

23rd JANUARY 1958.

PRESIDENT'S ADDRESS.

Read by B. P. Moore, B.Sc., D.Phil., F.R.E.S.

Ladies and Gentlemen,

The closing year has undoubtedly been a satisfactory one for the Society. Happily free from major disturbances, it has provided an opportunity for the consolidation so necessary at this juncture, after a move to new premises. Our regular officers have made full use of the occasion, in their characteristically unobtrusive way, to overhaul the machinery, with the result that we come upon the new session in a strong position.

Our finances, always a delicate matter—and never more so than in these unsettled times, have been managed by the Treasurer, Mr. Henderson, with the sound judgment and efficiency that we have come to expect of him. It is indeed good to know that, in spite of ever-increasing costs, we are still living well within our means.

During my term of office the membership has fluctuated about the 500 mark—a total which seems to be our natural level. Death robbed us of seven members during the year.

Mr. L. C. Bushby, who died as a result of a tragic accident, was a well-known personality in entomological circles. For many years he was Curator of the Insect House at the London Zoological Gardens, and his attractive 'live' displays will be remembered by many visitors to our Annual Exhibitions. He joined the Society in 1922.

Mr. A. V. Hedges had been a country member for over twenty years but, being domiciled in the Isle of Man, he was seldom able to attend our meetings. He specialized in rearing Lepidoptera.

Mr. P. Harwood, who was elected in 1924, spent a lifetime studying the British insect fauna. He accumulated a vast selection of material of the 'other orders' from all parts of the Kingdom and his collections rank with the finest ever made. They are to be distributed between the British Museum (Natural History) and the Hope Department of Entomology, Oxford.

Mr. A. Smith, who died during the year, joined us as recently as 1952. He collected Lepidoptera and Coleoptera.

Mr. J. Fincham Turner was well known to many of our members, although I never met him myself. He was elected in 1943.

Mr. D. Watson, whose death was announced in July, had been a member for over thirty years. He was interested in Lepidoptera.

Mr. H. O. Wells was one of our senior members, having been elected as long ago as 1911. As you will have heard, he left his rich collection of British Lepidoptera to the Society.

We have already stood in memory of each of these late members, so I will not ask you to rise again.

In the Birthday Honours, Her Majesty the Queen was graciously pleased to honour our member Major-General G. F. Johnson, C.B., C.B.E., D.S.O., with a K.C.V.O.

Like my predecessors in office, I have relied heavily upon the regular officers during my tenure of the Chair. Our new Honorary Secretary, Mr. Goater, deserves the warmest praise for the speedy way in which he has mastered the intricacies of his, the most exacting of the offices. It has been a great pleasure to work with him.

The Editor, Mr. Buck, has also been quick to apply his special *savoir faire* to his new task, with the result that two issues of the Proceedings have appeared this year. The second volume, that for 1956, was ready for distribution at the Annual Exhibition, last October. What more could any President desire?

Mr. Eagles has devoted much time and energy as Librarian to a general overhaul of our library system. He has succeeded in tracing and recovering many lost volumes and, ably assisted by Mr. Vallins, he has revised the index of holdings. Thus, for the first time for many years, we know exactly what we have and where it may be found.

The Curator, Mr. Gardner, has made considerable progress with the important task of incorporating material from recent extensive bequests. I am pleased to note that increasing use is being made, both by members and visitors, of our reference collections.

The Lanternist, Mr. Christie, has also had a busy year and this, surely, is an indication of the vigour of the Society. With the increasing popularity and success of colour-photography it is seldom that his services are not required and he is frequently called upon to operate more than one projector during the course of a meeting.

Lastly, I must call attention to the work of our Assistant Secretaries. Mr. Howarth (indoor meetings) has provided us with some of the most interesting and varied programmes that we have had for many years and he regularly covers a full year's card at one printing —a considerable saving for the Society. Mr. Wakely has decided to retire after conspicuous success with field meetings for several seasons. He deserves our grateful thanks. His successor, Mr. Uffen, will I am sure, maintain the same high standard.

For the entomological portion of my address I turn to a small but none-the-less interesting section of the Coleoptera.

The Systematic Position of the Tiger Beetles.

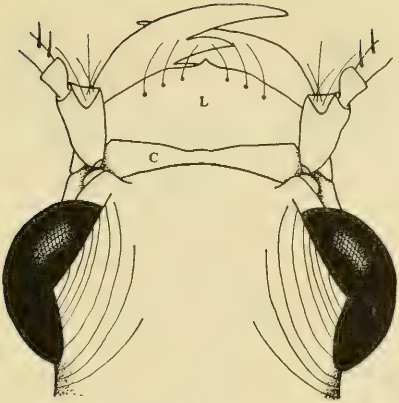
The Tiger Beetles form a characteristic and very homogeneous group within the Coleoptera. Although not particularly numerous in species (some fifteen hundred are at present known (Horn, 1926 *et seq.*)) they have always been popular with collectors and students of local variation, so that they have become better known, in the adult stage, than most other sections of the order. However, our knowledge of the early stages is still fragmentary.

Tiger Beetles are exclusively carnivorous and, as befits their common name, they are amongst the fiercest of the predacious Coleoptera. The great majority are diurnal insects and are exceedingly active in fine weather. They are mostly to be found in open, sandy country, where they run with great rapidity and take to the wing at the slightest alarm, although their flight is seldom sustained for long. Tropical faunas, however, include a proportion of strictly arboreal species.

The question of the systematic status of the Tiger Beetles is still very much an open issue, but their close affinities with the carabid beetles are obvious. Some specialists retain them as a separate family, the Cicindelidae—a course which has the merit of convenience but one which, to my mind, over-emphasizes the rather slender distinctions which separate them from the Carabidae. For although it is certainly true that species of the type genus *Cicindela* L. and its allies possess many distinctive characters, account must be taken of such genera as *Omus* Esch. and *Manticora* F. These appear to be the more primitive genera of Tiger Beetles and they contain flightless, ground-frequenting species, sombre-coloured and nocturnal in habits, and much more carabid-like in general appearance. We shall see that there are, in sum, very few characters which will serve to separate *all* Tiger Beetles from their carabid relations. I therefore prefer to place them as a subfamily, Cicindelinae, of the Carabidae.

Our common *Cicindela campestris* L. may be taken as typical of its group. The build of the head (Fig. 1) reflects closely the active predatory habits of the beetle. The large, prominent eyes, with their many facets, the broad labrum, the slender, strongly dentate mandibles and the supra-orbital sulci are noteworthy features. The antennae are inserted on the frons, at a distance apart considerably less than the breadth of the clypeus. Here we have one of the truly diagnostic characters of the Cicindelinae. The corresponding dispositions in the rest of the Carabidae are typified by Fig. 2 (*Carabus violaceus* L.). Here the antennae are inserted laterally, at the base of the mandibles, and the large but narrow clypeus extends between them.

The mandible of *C. campestris* (Fig. 3) shows obvious adaptation for seizing and holding living prey. The dentate inner margin is characteristic of the great majority of the Cicindelinae, but with a



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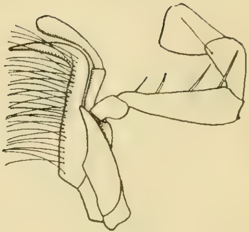

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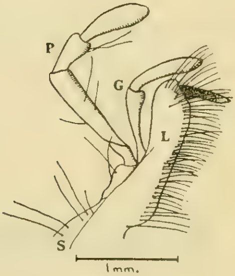

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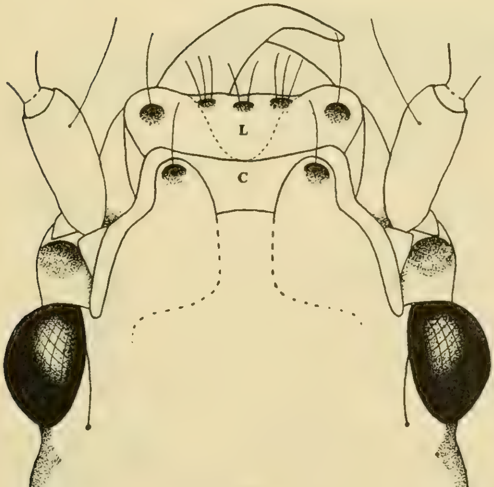

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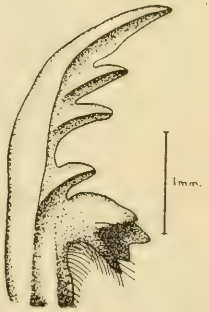

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Fig. 1 Head, *Cicindela campestris* L. (L, labrum; C, clypeus).

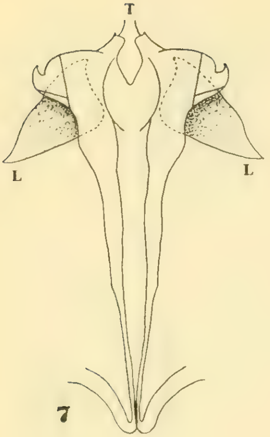
Fig. 2 The same, *Carabus violaceus* L.

Fig. 3 Left mandible, *Cicindela campestris.*

Fig. 4 Right maxilla (ventral view), *Cicindela campestris* (S, stipes; L, lacinia; G, galea; P, palp).

Fig. 5 The same (dorsal view), *Omus californicus* Esch.

All Figs. to same scale.



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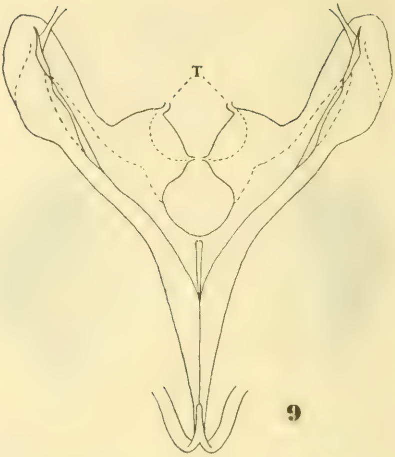

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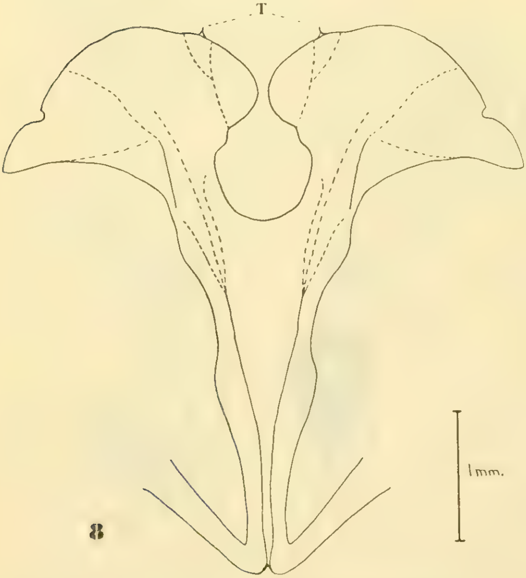

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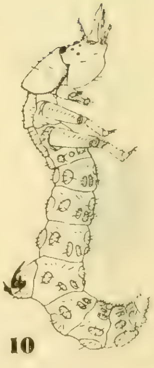

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Fig. 7 Met-endosternite, *Cicindela campestris* L. T, anterior tendons; L, lamina).

Fig. 8 The same, *Carabus violaceus* L.

Fig. 9 The same, *Omus californicus* Esch.

Fig. 10 Larva (lateral view), *Omus californicus* (after Hamilton, 1925).

Figs. 7-9 to same scale.

few genera, notably the S. American *Phacoxantha* Chaud., this margin is irregularly dentate—a condition rather akin to that found in the fossorial carabids of the tribe Scaritini.

The maxilla of *Cicindela* (Fig. 4) is noteworthy for the presence of an articulated hook at the apex of the lacinia. It is generally stated in the literature that such an articulated hook exists in all Tiger Beetles except the species of the tropical genera *Ctenostoma* Kg. and *Pogonostoma* Kg., but I find that in the more primitive genera *Omus* and *Manticora*, the hook is fixed and is in effect merely a falcate extension of the lacinia itself—a state of affairs which is almost general throughout the remaining Carabidae. Here, then, we have a character of some phylogenetic significance.

The wing-venation typical of the Cicindelinae is shown in Fig. 6; it is decidedly complex, particularly in the development of untracheated veins about and distal to the carpal cell. This is to be associated with the power of rapid extension and retraction of the wings so characteristic of these insects. Another noteworthy feature is the absence of an oblongum cell. It would appear that the oblongum has disappeared through coalescence of the two cross-veins normally present below the carpal cell, and between M and Cu, of the normal Adephagan wing. However, it is interesting to note that in one genus of the subfamily, namely *Pogonostoma,* an oblongum is still present.

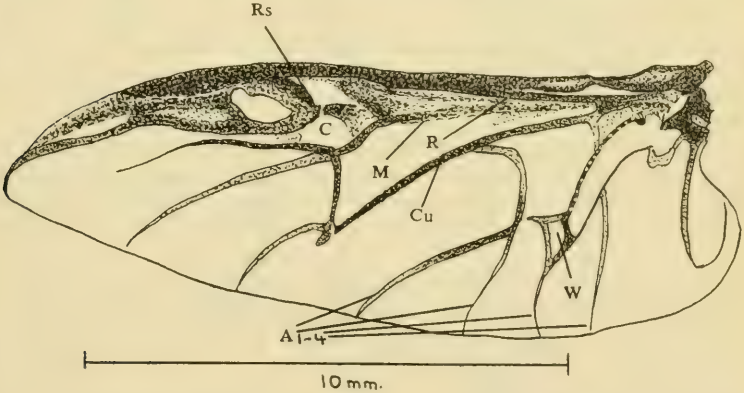

Fig. 6 Left wing, *Cicindela campestris* L. (R, radius; Rs, radial sector; C, carpal cell; M, media; Cu, cubitus; A 1-4, anal veins; W, anal cell).

The metendosternite of *Cicindela campestris* (Fig. 7) is probably typical of the genus. It is robust, with well developed lamellae, and is strongly three-dimensional in cross-section. With *Omus californicus* Esch., this organ (Fig. 9) is flat; the arms are extended and the lamellae absent. That of *Carabus violaceus* (Fig. 8) is similar, except that the arms have become much more dilate. Here, then, we have another instance of the intermediate position of a primitive cicindeline, but it should be borne in mind that the metendosternite is likely to reflect the degree of activity of the species (it is the point of attachment of the hind-leg muscles). Personally, I am uncertain of the value of the metendosternite in phylogenetic studies. Crowson (1938), who was first to study the comparative anatomy of the organ in the Coleoptera, gives rather different figures for the first and last of my three species.

The male genitalia (aedeagi) of the Cicindelinae (Figs. 11, 12) resemble those of the Carabini. The left and right parameres are similar in outline and are strongly attenuated towards the tip. The median lobe is strongly chitinized and carries the ejaculatory orifice on its dorsum. A special feature is the linkage of the parameres, across the dorsum of the median lobe, by a chitinous strut. This strut, which represents a stiffening of the aedeagal membranes common to all

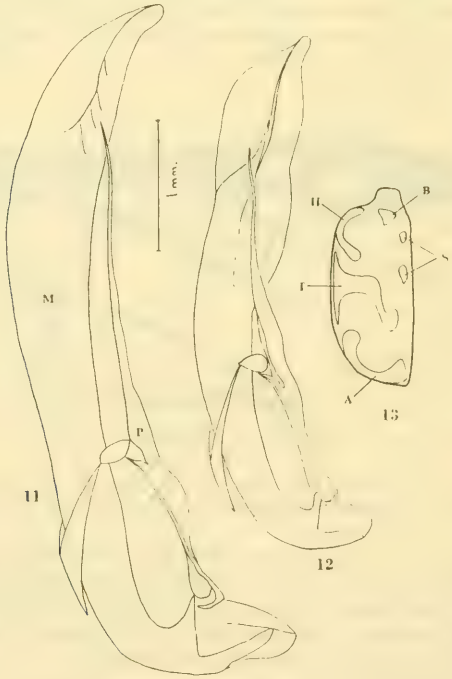

Fig. 11 Aedeagus (left lateral view), *Cicindela hybrida* L. (M, median lobe; P, paramere).

Fig. 12 The same, *C. maritima* Dej.

Fig. 13 Basic elytral pattern of *Cicindela* (schematic) (A, apical component; T, transverse; H, humeral; B, basal; S, sutural components).

Carabidae, appears to be characteristic of the Cicindelinae. The armature of the internal sac is generally very complex and has been used by Rivalier (1950) as a basis for subdivision of *Cicindela* into smaller genera. However, most of his 'genera' appear to me to be better represented as subgenera.

The cytology of the Cicindelinae has been little investigated, owing to practical difficulties presented by these insects. However, according to Smith (1950), the usual chromosome constitution would appear to be 9-10 pairs of autosomes and an XY allosome pair, i.e., very near to the primitive condition (9AA plus XY). The remaining Carabidae have, for the most part, rather large chromosome complements (14-18AA), with frequent concomitant loss of the Y sex-chromosome.

The larvae of the Cicindelinae are highly characteristic, so that even the most aberrant of them can be recognised at sight. This uniformity is the result of close adaptation to a particular mode of life which, so far as is known, is universal throughout the group. They live in vertical burrows, which they construct in the soil (terrestrial species) or in the branches of trees and shrubs (arboreal species). The larva of *Omus californicus* (Fig. 10) is typical. The head and pronotum fit closely together to form a flat disc set at a considerable angle to the line of the remaining segments. The abdomen is considerably contorted and bears, on the dorsum of segment five, one or more pairs of strongly chitinized hooks. In its normal waiting position at the top of the burrow, the larva uses its head and pronotum as a kind of shield to block the entrance and protect its softer parts, the abdominal hooks serving to hold it in position. Prey chancing to pass overhead is seized with the long, upturned mandibles and consumed at the bottom of the burrow.

Five tribes are generally recognised within the Cicindelinae, viz.: Ctenostomini, Collyrini, Megacephalini, Manticorini and Cicindelini; the last contains the bulk of the species (Horn, 1926). The two first-mentioned include the very slender arboreal Tiger Beetles of the tropics and they stand rather apart from the remaining terrestrial tribes. The Megacephalini appear to be the most primitive of the five tribes; the Cicindelini are undoubtedly the most specialized. Species of the Megacephalini are mostly nocturnal and they lack the intricate elytral patterns so characteristic of their diurnal relatives. In *Cicindela*, these patterns achieve their greatest diversity but would appear to have evolved by extension, coalition and/or regression of the several fixed lunules of a single basic scheme (Fig. 13). This basic type of pattern still exists in some species (e.g., *C. flexuosa* F.).

The Cicindelinae are almost world-wide in distribution, being represented on all the major habitable land-masses. They are, however, conspicuously absent from many island faunas, for example, those of the Atlantic Isles (Madeira, the Azores, Canaries, etc.), most of Polynesia, Tasmania, and Tierra del Fuego. Rapp (1946) has suggested Asia as the original zoocentre for the group, since the species are most numerous there at the present time. This seems reasonable, but his implication that *Cicindela* was the ancestral genus is unacceptable. I assume that the Cicindelinae originated in the tropics, where they reach their greatest abundance, both in genera and in species, and that *Cicindela*, which contains the most highly evolved species, achieved its wider distribution as the result of subsequent adaptation and spread. Unfortunately, the known fossil Cicindelinae are so few that they can

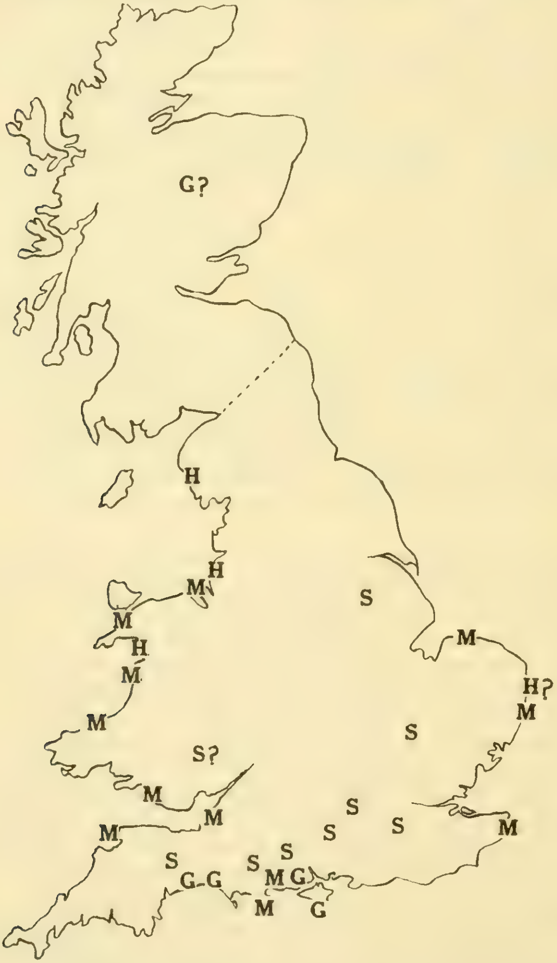

Fig. 14 The approximate distribution of four British species of *Cicindela* L. G, *germanica* L.; H, *hybrida* L.; M, *maritima* Dej.; S, *sylvatica* L.

contribute little towards a knowledge of the origin and evolution of the subfamily. Perhaps the best-known example is a specimen of *Megacephala* Lat. in Baltic amber (see Horn, 1908).

Our British Tiger Beetles number five; all of them belong to the genus *Cicindela*. One species, *C. maritima* Dej. has been regarded by many authors as a subspecies of *C. hybrida* L., but the male genitalia of the two forms (Figs. 11, 12) are quite distinct. *C. campestris* occurs throughout the Kingdom and it is the only representative of the subfamily in Ireland. The other species are much more local (Fig. 14) and are evidently at the extreme edge of their range. However, it is possible that at one time, before the land was so extensively developed, these latter species were more widespread.

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FIELD MEETINGS, 1957.

OCKHAM, SURREY—7th April 1957.

Leader, Mr. E. E. J. Trundell.

Fifteen members and visitors joined the first field meeting of the season. The weather was dry all day, but cold with an easterly wind. The party proceeded to Ockham Wood by car, where a start was made by collecting catkins from the Black Poplar (*Populus nigra* L.) in the hope of obtaining larvae of *Cirrhia ocellaris* Borkh.

No butterflies at all were reported, and the only species of the larger moths were four common ones: *Xylocampa areola* Esp., *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh., *Eupithecia abbreviata* Steph. and *Aethalura punctulata* Schiff. The larvae of *Parascotia fuliginaria* L., *Allophyes oxyacanthae* L., *Ellopia fasciaria* L. and *Euproctis similis* Fuessl. were either taken or seen. Among the Micros the larvae of *Pammene regiana* Zell. and *Lithocolletis trifasciella* Haw. were taken and the larval case of *Luffia lapidella* Goeze was found. A single beetle, *Dorytomus longimanus* (Forst.) was reported, and Mr. T. R. Eagles noted the shrub *Amelanchier laevis* Weig.

Twelve of the original party had a very good tea at the Halt tearooms by Effingham Station.

BOX HILL, SURREY—14th April 1957.

Leader, Mr. F. D. Buck.

This popular venue was once more very well attended. The ground here is so well known that the leaders attendance is in the main formal, and though the intended route was over the stepping stones, across the top of the Hill to the valleys in the north, the party was allowed to work their own way over the area. The weather was extremely kind, with the sun well in evidence, but not so hot as to make working this arduous locality uncomfortable.

Rhopalocera noted on the wing during the day were: *Pieris rapae* L., *Gonepteryx rhamni* L., *Aglais urticae* L., *Nymphalis io* L., and *Pararge aegeria* L.

Perhaps the most interesting among the Coleoptera either seen or taken were: *Pilemostoma fastuosa* (Schall.), which was quite plentiful on *Inula* in Happy Valley and was also seen in Juniper Valley; a single example of *Licinus depressus* (Payk.) was taken under a stone in Happy Valley, whilst in moss in the same area occurred *Otiorrhynchus clavipes* (Bons.).

The summer migrant birds, Blackcap, Chiff-chaff and Willow Warbler were seen during the day and the Tree Creeper was heard singing.

An item of more than usual interest was a large piece of beech stained brilliant blue-green by the mycelium of *Chlorosplenium aeruginosum* (Oeder ex Fr.) de Not. The Pezizoid fruiting caps of the fungus, according to Mr. Spreadbury who reported the find, are rarely seen. Another fungus worthy of note was *Acetabula vulgaris* Fuckel.

Coleoptera taken and not recorded in the foregoing were: *Harpalus latus* (L.), under stones; *Atheta* (*Liogluta*) *longiuscula* (Grav.), in rotting *Polyporus*; *A.* (*Dimetrota*) *marcida* (Er.), also in rotting *Polyporus*; *Autalia longicornis* Scheer., in rotting *Polyporus*; *Philonthus umbratilis* (Grav.), very common in rotting *Polyporus*; *Phloenomus pusillus* (Grav.), under bark of fallen beech; *Proteinus brachypterus* (F.), in rotting *Polyporus*; *Megarthrus depressus* (Payk.), a single example in rotting *Polyporus*; *Hister striola* Sahlb., a single example in rotting *Polyporus*; *Bitoma crenata* (F.), quite common under the bark of a fallen beech; *Scymnus frontalis* F. var. *immaculatus* Suffr., a single example on a fallen beech; *Cerylon ferrugineum* Steph., quite common under the bark of a fallen beech; *C. fagi* Bris., a single example under the bark of a fallen beech; *Atomaria ruficornis* (Marsh.), in rotting *Polyporus*.

At the close of the meeting 19 members and visitors sat down to an enjoyable tea at the "Stepping Stones" Hotel.

OXSHOTT, SURREY—20th April 1957.

Leader, Mr. R. W. J. Uffen.

A gloriously sunny day greeted the twenty-one members and friends who decided to spend their Easter Saturday collecting, though the leader found that the cool breeze which had been with us for some weeks prevented the Diptera from flying except in sheltered spots.

The party moved up the slope from Oxshott station and spent the morning working the densely regenerating pine and birch woods of the heath, which were thinned during the period 1939-1945. Numbers of Tortricid larvae were found in the pine shoots, from which Mr. Tunstall reared *Evetria buoliana* Schiff. and *Evetria posticana* Zett., presenting the latter to the society. The larvae of a species of *Coleophora* were plentiful in their cases on the young foliage of the birches.

The party became fragmented in passing through the dense belt of birch and sphagnum between the heath and Esher Common, obliging the leader to stop short of the Black Pond for lunch to regather his flock.

The large open valley area to the east of the Black Pond, which has failed to regenerate as birch woodland because of perennial fires ever since the pine wood was felled after 1914, has now been planted with young conifers, chiefly pine and cypress. It is to be hoped that the area will not become so dense as to prevent access, although the central part is at present effectively closed to those without rubber boots.

The party moved round the Black Pond, where the numerous little grebes, moorhens and other water-fowl were watched. The moth *Narycia monilifera* Geoff. was reared from cases covered with algae which were found on the trunks of oak trees there. At about this time one person was troubled by a large insect which kept flying round him. He then remembered that he had brought a female *Saturnia pavonia* L. (Emperor Moth) with him to secure precisely this result, and proceeded to add a fine male to his collection.

The party, by then feeling the effects of their exercise, were finally refreshed by an excellent tea at our usual rendezvous by Oxshott station.

The only sawfly to fly past the leader's nose proved to be *Empria candidata* (Fall.). A specimen of the weevil *Platystomos albinus* (L.) was taken by Mr. Brush and is mentioned elsewhere in this volume (p. 7). Other insects seen are listed below.

Mr Spreadbury reported hearing the Woodlark, Whitethroat and Willow Warbler singing, and found the Cotton Sedge, *Eriophorum angustifolium* Honck. to be flowering.

Lepidoptera: *Adela viridella* Scop., *Heliozela sericiella* Haw., *Taleporia tubulosa* Retz. larval cases, *Coleophora pyrrhulipennella* Zell. larval cases, *Swammerdamia heroldella* Hubn., *Dasycera sulphurella* (F.), *Laspeyresia servillana* Dup. galls on sallow, *L. ulicitana* Haw. (*succedana* Frö.) near the station, *Acleris ferrugana* Schiff. nearly over, *Aethalura punctulata* Schiff., *Ematurga atomaria* L., *Ellopia fasciaria* L. (*prosapiaria* L.) larvae, *Perconia strigillaria* Hubn., one larva, *Thera obeliscata* Hubn. pupae and imagines, *Cosymbia albipunctata* Hufn., *Parascotia fuliginaria* L. larvae, *Anarta myrtilli* L., *Orthosia gracilis* Schiff., one on a fence near the station.

Coleoptera: *Chrysomela populi* L., *Cicindella campestris* L., *C. sylvatica* L., *Anatis ocellata* (L.).

Diptera (Syrphidae): *Syrphus tricinctus* (Fall.), *S. cinctellus* (Zett.), *Platycheirus albimanus* (F.), *Melanostoma mellinum* (L.), *Scaeva pyrastri* (L.), numerous larvae feeding on the aphids on pine. The only Tachinid seen on the tree trunks was *Gymnochaeta viridis* (Fall.).

BUCKLAND SAND-PITS AND REIGATE HEATH—28th April 1957.

Leader, Mr. A. W. Gould.

Seventeen members and visitors met at Buckland Church to take advantage of the kind permission of the Buckland Sand and Silica Co. Ltd. to enter their sand-pits. The weather remained dry all day, but there was no sunshine, and a cool N.E. wind prevented insects from flying freely.

The first pit, behind the Church, was of special interest as it yields a valuable white iron-free sand suitable for glass manufacture. The worked-out sections of this pit were covered with a sparse vegetation and there were a few shallow pools (dry at the time of our visit).

Larvae were searched for in the flowering broom, and the damp

BUCKLAND, SURREY. 28th April 1957.

Back row (left to right): B. F. Skinner, ——, H. J. Brush, E. E. Syms, A. W. Gould (*leader*), F. Rumsey, A. A. Allen (*visitor*), R. Fairclough, T. R. Eagles, J. L. Henderson. *Front row (left to right)*: F. T. Vallins, S. Wakely, K. A. Spencer, Miss Ashby, Mrs. Struthers.

CHALLOCK, KENT. 8th June 1957.

Back row (left to right): J. L. Henderson, M. G. Morris, F. Rumsey, R. W. J. Uffen, G. H. Youden, F. M. Struthers. *Front row (left to right)*: S. Wakely, Mrs. Struthers, Dr. E. Scott (*leader*), D. G. Marsh.

areas yielded beetles in plenty. Sand Martins were flying in the pit but were not yet nest building. A surprise nest with two eggs on the ground under some corrugated iron, was variously attributed to a Pipit and to a Pied Wagtail. While sitting at lunch the party observed a flying Heron being molested by a Crow, and the coleopterists were glad to pick up the little weevil *Gronops lunatus* (F.) which had been disturbed by the preparations.

After lunch an hour and a half was spent in the very large pit on the north side of the Dorking road. Here the vegetation was more varied, with willow and birch, a grassy bank and many large areas of wet sand and mud banks with deep pools. A few water beetles were taken and very large numbers of *Stenus comma* Lec. and *Elaphrus riparius* (L.) were seen on the wet margins. Two species of an uncommon Staphylinid, *Lathrobium ripicola* Czwal., were taken together with numbers of more common insects. Several clumps of the everlasting pea, *Lathyrus sylvestris* L., were seen in this pit.

The meeting closed with a stroll over Reigate Heath where the tiny vetch, *Ornithopus perpusillus* L., was seen. A pleasant tea was taken at the Reigate Heath Stores. One small visitor collected a sand lizard and a slow-worm during the afternoon.

Coleoptera taken during the day and not mentioned above included: *Cicindela campestris* L., *Bembidion guttula* (F.), *B. biguttatum* (F.), *B. lampros* (Herbst), *B. genei* s.sp. *illigeri* Netol., *B. quadrimaculatum* (L.), *B. femoratum* Sturm., *B. teracolum* Say. (*ustulatum* auct.), *Stenolophus mixtus* (Herbst), *Acupalpus dubius* Schil. (*luridus* auct. nec Dej.), *A. meridianus* (L.), *Bradycellus harpalinus* (Serv.), *Pterostichus cupreus* (L.), *P. gracilis* Dej., *P. minor* (Gyll.), *Agonum ruficorne* (Goeze), *A. fuliginosum* (Panz.), *Demetrias atricapillus* (L.), *Haliplus ruficornis* (Deg.), *Hyphydrus ovatus* (L.), *Coelambus confluens* (F.), *Hydroporus dorsalis* (F.), *Agabus didymus* (Ol.), *A. sturmii* (Gyll.), *Laccobius minutus* (L.), *Cryptopleurum minutum* (F.) (*atomarium* (Ol.)), *Aleochara bipustulata* (L.) (*nitida* Grav.), *Ocyusa maura* (Er.), *Amischa analis* (Grav.), *Alianta incana* (Er.), *Atheta aquatica* (Thoms.), *Philonthus rectangulus* Sharp, *Lathrobium fulvipenne* (Grav.), *L. punctatum* (Fourc.) (*brunnipes* (F.)), *L. terminatum* Grav., *Stenus juno* (Payk.), *S. clavicornis* (Scop.), *S. rogeri* Kraatz, *S. canaliculatus* Gyll., *S. pusillus* Er., *S. ossium* Steph., *S. aceris* Steph., *S. flavipes* Steph., *S. similis* (Herbst), *Platystethus arenarius* (Fourc.), *P. cornutus* (Grav.), *Oxytelus sculpturatus* (Grav.), *O. tetracarinatus* (Block), *Anthobium atrocephalum* (Gyll.), *Leiodes calcarata* (Er.), *Byrrhus fasciatus* (Forst.), *Hister duodecimstriatus* Schr., *Psammoecus bipunctatus* (F.), *Aphodius sphacelatus* (Panz.), *Agriotes obscurus* (L.), *Dalopius marginatus* (L.), *Metacantharis clypeatus* (Ill.) (*haemorrhoidalis* F.), *Gastrophysa polygoni* (L.), *Matura rustica* (L.), *Galerucella pusilla* (Dufts.), *Deporaus betulae* (L.), *Apion dichroum* Bedel, *Phyllobius calcaratus* (F.), *Barypithes pellucidus* (Boh.), *Polydrusus cervinus* (L.), *Sitona regensteinensis* (Herbst), *S. humeralis* Steph., *Notaris scirpi* (F.), *Phytonomus* *posticus* (Gyll.), *Ceuthorrhynchus constrictus* Marsh., and *C. sulcicollis* Payk. Lepidoptera imagines seen were as follows: *Pararge aegeria* L., *Chiasmia clathrata* L., *Ancylis lundana* F., *Laspeyresia perlepidana* Haw., *L. ulicetana* Haw., *Roeslerstammia erxlebella* F. and *Lithocolletis kleemannella* F. Whilst the larvae seen were: *Achlya flavicornis* L., *Arctia caja* L. common, *Allophyes oxyacanthae* L., *Nonagria algae* Esp., *Oporinia dilutata* Schiff., *Colotois pennaria* L., *Phigalia pilosaria* Schiff., *Platyptilia gonodactyla* Schiff., *Clepsis costana* F. common, *Gelechia mulinella* Zell., *Limnoecia phragmitella* Staint. and *Mompha conturbatella* Hb., the cocoons of *Mompha ochraceella* Curt. were common in the leaves of *Epilobium hirsutum* L.

STANFORD-LE-HOPE, ESSEX—4th May 1957.

Leader, Mr. E. E. Syms.

This year the meeting was earlier than in previous years. It was a cold dull day, but there were eight people present who spent most of their time collecting Microlepidoptera. The sea wall at Mucking Creek was again worked, and after tea a visit was paid to the flour mill in the town where a few beetles were taken on the outside of the windows. A list of insects taken is as follows:

Lepidoptera: *Larentia clavaria* Haw. larvae on *Malva sylvestris* L.; *Anania nubilalis* Hb. larvae in the stems of *Artemisia vulgaris* L.; *Lozopera beatricella* Wals. larvae common in stems of *Conium maculatum* L.; *Phalonia smeathmanniana* F.; *Bactra scirpicolana* Pierce larvae common in the stems of *Scirpus maritimus* L.; *Eucosma foenella* L. larvae in lower part of stems of *Artemisia vulgaris* L.; *Hemimene plumbagana* Treits.; *Aristotelia stipella* Hb.; *Phthorimaea atriplicella* F.R. very common; *Depressaria alstroemeriana* Clerck; *Coleophora lineolea* Haw. larvae on *Ballota nigra* L.; *Acrocercops omissella* Staint., *Gracillaria tringipennella* Zell. larvae in the leaves of *Plantago lanceolata* L.; *Eidophasia messingiella* F. larvae on *Cardaria* (*Lepidium*) *draba* (L.) Desv.; *Nemotois fasciella* F. at the base of plants of *Ballota nigra* L.

Coleoptera: On the sea wall: *Badister bipustulatus* (F.), *Laemostenus terricola* (Herbst), *Stomis pumicatus* (Panz.), *Brachinus crepitans* (L.), *Phosphuga atrata* (L.), *Silpha tristis* Ill., *Catops nigricans* (Spence), *Nargus velox* (Spence), *Amischa analis* (Grav.), *Omalium caesum* Grav., *Quedius picipes* (Payk.), *Q. molochinus* (Grav.), *Coccidula scutellata* (Herbst), *Pyrochroa serraticornis* (Scop.), *Chrysolina banksi* (F.). On the Saltmarsh: *Dyschirius salinus* Sch., *Dicheirotrichus obsoletus* (Dej.), *Bembidion minimum* (F.), *Bledius germanicus* Wagn. (*limicola* Tott.), *Platystethus nitens* (Sahl.), *Carpelimus corticinus* (Grav.), *Brachygluta helferi* (S.-G.). In debris outside windows of grain store: *Oryzaephilus surinamensis* (L.), *Dropephylla vilis* Er., *Ptinus tectus* Boield. and *Alphitophagus bifasciatus* (Say.). *Ceuthorrhynchus turbatus* Schall. was again taken on *Cardaria* (*Lepidium*) *draba* (L.) Desv.

HALLING, KENT—12th May 1957.

Leader, Mr. C. H. **Hards.**

The day was cloudy and rather windy, but fortunately without the rain which affected other parts of Kent. Ten members and one visitor attended.

The slopes and woods were worked with good results considering the conditions. The meeting finished at 6 p.m. and all members said that they had enjoyed the day, hoping to have meetings in the same area on future occasions.

Lepidoptera noted were, imagines: *Euchloë cardamines* L. a single male, *Pieris napi* L., *Gonepteryx rhamni* L. one male, *Anaitis plagiata* L., *Eupithecia subumbrata* Schiff., *Eucosma rheediana* Haw. Larvae: *Allophyes oxyacanthae* L., *Orthosia gothica* L., *Colotois pennaria* L., *Phigalia pilosaria* Schiff. (*pedaria* F.), *Nephopterix obductella* Zell. numerous on *Origanum vulgare* L., *Alucita galactodactyla* Schiff. on *Arctium lappa* L., *A. baliodactyla* Zell. on *Origanum vulgare* L., *Oidaematophorus carphodactylus* Hb. both larvae and pupae on *Inula conyza* DC. (*squarrosa* L.), *Depressaria nanatella* Staint. plentiful in spun leaves of *Carlina vulgaris* L., *Coleophora albitarsella* Zell. a few on *Origanum vulgare* L. Ova of *Cucullia verbasci* L. were found on *Verbascum.* Several interesting plants were noted, among them the uncommon *Paris quadrifolia* L. (Herb Paris).

The discovery of *Nephopterix obductella* Zell. larvae here was one of the highlights of the trip, and a number of moths were eventually bred, some members feeding the larvae on garden mint.

OTFORD, KENT—18th May 1957.

Leader, Mr. S. N. A. **Jacobs.**

Owing to a bad start with the weather, only eight members assembled at the rendezvous, but their hardihood was well rewarded, for the weather remained good for the rest of the day.

The party moved off by car to Shoreham, and worked the hillside to the east of Shoreham Station, commencing in the station yard with the observation of ova of *Euchloë cardamines* L. on the unripe seed vessels of garlic mustard (*Alliaria petiolata* (Bieb.) C. & G.), and the collection of young *Depressaria* larvae from the leaves of Cow Parsley (*Anthriscus sylvestris* (L.) Bern.) in the hope that some *D. bipunctosa* Curt. might be found among the *D. applana* F. so common on that plant.

The hillside was worked both morning and afternoon, and the party returned to Col. Manley's house where he and Mrs. Manley had very kindly provided an excellent tea.

Butterflies seen during the course of the day included *Pieris brassicae* L., *P. napi* L. and *P. rapae* L., *Euchloë cardamines* L. (ova), *Pararge megera* L. and *Coenonympha pamphilus* L.; while micros recorded were *Phalonia smeathmanniana* F., *Elachista argentella* Clerck, *Laspeyresia* *perlepidana* Haw., *Gracillaria syringella* F., *Nemophora swammerdamella* L. and *Adela fibulella* L. Lepidopterous larvae reported included *Psammotis crocealis* Hb. on *Inula conyza* DC.; *Alucita baliodactyla* Zell. on *Origanum vulgare* L.; *A. galactodactyla* Schiff. on *Arctium lappa* L.; *Tortrix forskåleana* L. on maple; *Stomopteryx taeniolella* Zell. on *Lotus corniculatus* L.; *S. vorticella* Scop. on *Lotus*; *S. anthyllidella* Hb. on *Anthyllis vulneraria* L.; *Stephensia brunnichiella* L. on *Calamintha*; *Coleophora hemerobiella* Scop. on *Malus sylvestris* (L.) Mill. and *Crataegus*; *Gracillaria auroguttella* Steph. on *Hypericum*; *G. tringipennella* Zell. on Plantain; *Lithocolletis lantanella* Schr. on Viburnum; *Depressaria hypericella* Hb. (*liturella* Hb.) on *Hypericum* and *Ypsolophus sequellus* Clerck on maple.

Beetles seen included a glow-worm (*Lampyris noctiluca* (L.)), and among the birds seen were the Common Whitethroat and House Martin quite commonly; Bullfinch, Skylark, Yellow Bunting, Linnet, Willow Warbler, Swallow and Swift. A nest of the Missel Thrush was noted, and a nest of the Coal-tit was found in a brick embankment in Col. Manley's garden. A well-grown female adder was seen.

Among the plants recorded were: *Aceras anthropophorum* (L.) S. F. Gray (Man Orchid), *Onobrychis viciifolia* Scop. (Sanfoin), *Hieracium pilosella* L. (Mouse-ear Hawkweed), *Poterium sanguisorba* L. (Salad Burnet), *Reseda lutea* L. (Wild Mignonette), *Helianthemum chamaecistus* Mill. (Common Rockrose), *Euonymus europaeus* L. (Spindle-tree), *Lithospermum officinale* L. (Common Gromwell), *Geranium dissectum* L. (Cut-leaved Geranium), *Galium cruciata* (L.) Scop. (Crosswort), *Polygala vulgaris* L. (Common Milkwort) and *Daphne laureola* L.

CHOBHAM, SURREY—26th May 1957.

Leader, Mr. S. Wakely.

Seven members and friends met at Woking Station for this trip and were grateful to Mr. and Mrs. Rumsey who conveyed the party in relays to Chobham Common in their car. The weather was not on its best behaviour; a strong cold wind was blowing, with the result that few insects were flying and it was difficult to disturb any that might have been at rest in the herbage. A visit was paid to the large patch of *Kalmia polifolia* Wangenh. which was found to be still flourishing on a swampy portion of the Common. Attention was given to the many small pines and numerous larvae were taken in terminal buds. From these numbers of *Evetria pinicolana* Doubl. and *E. pinivorana* Zell. were subsequently bred. Larvae of *Evetria buoliana* Schiff. were also taken, but these were in the central shoots or "candles" as they are sometimes called.

After lunch in a trench which gave welcome shelter from the persistent wind the party moved on to an area where there were numbers of large tree stumps which had been left lying about. A search was made for larvae of *Parascotia fuliginaria* L. here, but although an old cocoon was found no larvae could be detected. Larvae of *Tinea parasitella* Hb. were found in fungi and a few imagines also noticed at rest on the stumps. Moving on, a lot of time was spent searching for larvae of *Trichoptilus paludum* Zell. on *Drosera rotundifolia* L. A few larvae were found and it was agreed that it must be one of the most difficult species to find owing to its colouration and markings harmonising so well with the foodplant. A single larva of *Paltodora cytisella* Curt. was found in a stem of *Pteridium* (*Pteris*) *aquilinum* (L.) Kuhn, but in spite of a concentrated search no others were forthcoming.

A very pleasant tea was had at the Sundial Tea-rooms at Chobham. With the permission of the proprietress some of the party examined a number of various species of lily growing in the garden and found several fine specimens of the extremely local brightly coloured beetle *Lilioceris lilii* Scop., together with its unpleasant-looking larvae and also ova. Three members walked back to Byfleet and on the way collected fir cones on Horsell Common from which emerged a few days later numerous *Laspeyresia conicolana* Heylaerts. A visit was paid to a house at Sheerwater in the garden of which *Parascotia fuliginaria* L. was known to occur, with the result that about twenty larvae were found on fungi under a large willow log.

Several members who came by car later in the day failed to find the main party.

SEAL CHART AND HALLING, KENT—2nd June 1957.

Leader, Mr. J. M. Chalmers-Hunt.

For this meeting the small party of eight enjoyed a warm windless and sunny day. Seal Chart was worked during the morning, and those who were in need of *Cepphis advenaria* Hb. found it in good condition, though very local and not common. Numbers of the pretty little *Micropterix aureatella* Scop. were noted flying in the sun and settling on bilberry, also taken were imagines of *Dasycera sulphurella* F. and *Capua vulgana* Frol. (*favillaceana* Hb.). Larvae were plentiful in rolled leaves of oak and included *Aleimma* (*Tortrix*) *loeflingiana* L., *Tortrix viridana* L. (a pest as usual), *Archips* (*Cacoecia*) *xylosteana* L., *A. hebenstreitella* Müll. (*sorbiana* Hb.), *Tortricodes tortricella* Hb. and *Eucosma solandriana* L. (also on birch). Only two species of Coleoptera were reported; *Phyllobius argentatus* (L.) and *Polydrusus tereticollis* (Deg.) both by Mr. A. A. Allen.

After lunch the party set off in cars to Halling, where a pleasant couple of hours were spent on the downs and in the woods west of the Medway. Insects were plentiful and the following Lepidoptera were among those noted: *Syndemis* (*Tortrix*) *musculana* Hb., *Eucosma tripunctana* F., *Phtheocroa maculosana* Haw., *Lampronia oehlmanniella* Treits., *Argyroploce lacunana* Dup., *Lathronympha hypericana* Hb., *Laspeyresia nigricana* Steph., *Pseudopanthera macularia* L., *Coenonympha pamphilus* L., *Pyrgus malvae* L. Larvae of *Nephopteryx obductella* Zell. were plentiful on *Origanum* and a number of larvae of *Depressaria nanatella* Staint. were found on *Carlina*.

On returning to Seal Village the party repaired to the "Copper Kettle" for tea and to compare notes on the day's outing.

HAM STREET, KENT—8th June 1957.

Leader, Dr. E. Scott.

A rather dull morning developed into a sunny afternoon with a strong southerly wind. Eleven members gathered at Ham Street station where there were sufficient cars to take them to Orlstone Woods.

The terrain was much dried up, but there were a good many Lepidoptera on the wing and members found themselves fully employed. The rare and local *Colobochyla salicalis* Schiff. was beaten freely from aspen. Larvae discovered included *Depressaria angelicella* Hb., and *Coleophora gryphipennella* Bouch (on Dog Rose) and cases of *Epichnopteryx pulla* Esp. Little new was noted in the flora except *Geranium pyrenaicum* Burm. which was growing in the station yard, the pretty *Lathyrus nissolia* L. (Grass Vetchling) along a ride and *Carex demissa* Hornem. with strangely bunched inflorescences, probably the result of drought. There are some fine examples of the Service tree in these woods and they were in full flower.

The following Lepidoptera were recorded: *Pieris rapae* L., *P. napi* L., *Argynnis euphrosyne* L., *A. selene* Schiff., *Pararge aegeria* L., *P. megera* L., *Coenonympha pamphilus* L., *Maniola jurtina* L. just emerging, *Hamearis lucina* L. scarce in the Weald, *Polyommatus icarus* Rott., *Pyrgus malvae* L., *Erynnis tages* L., *Ochlodes venata* Br. & Grey, *Macrothylacia rubi* L., *Arctia villica* L., *Cybosia mesomella* L., *Apamea remissa* Hb. (*obscura* Haw.), *Jaspidea fasciana* L. (*pygarga* Hufn.), *Rivula sericealis* Scop., *Euclidimera mi* Clerck, *Colobochyla salicalis* Schiff., *Herminia barbalis* Clerck, *Iodis lactearia* L., *Sterrha trigeminata* Haw., *Electrophaës corylata* Thunb., *Dysstroma truncata* Hufn., *Xanthorhoë montanata* Schiff., *Asthena albulata* Hufn., *Euphyia luctuata* Schiff., *Eulype hastata* L., *Lomaspilis marginata* L., *Pseudopanthera macularia* L., *Lithina chlorosata* Scop., *Anania funebris* Stroem., *Perinephela lancealis* Schiff., *Microstega pandalis* Hb., *Crambus pascuellus* L., *C. pratellus* L., *Stenoptilia bipunctidactyla* Scop., *Platyptilia calodactyla* Hb., *Phalonia cnicana* Doubl., *Cnephasia incertana* Treits., *Ancylis mitterbacheriana* Schiff., *A. laetana* F., *Bactra lanceolana* Hb., *Argyroploce arcuella* Clerck, *A. lacunana* Dup., *A. urticana* Hb., *Eucosma tripunctana* F., *E. pflugiana* Haw., *E. bilunana* Haw., *E. rheediana* Haw., *E. aspidiscana* Hb., *Choreutis myllerana* F. local in a damp area where *Scutellaria minor* L. (Lesser Skullcap) grows, *Mompha schrankella* Hb., *Oecophora geoffrella* L., *Glyphipterix fuscoviridella* Haw., *G. thrasonella* Scop., *Tinea fulvimitrella* Sodof., *Nemotois degeerella* L. and *Adela fibulella* Schiff.

Coleoptera noted included the very rare *Lagria atripes* (Muls.) of which two females were beaten off aspen. Other interesting and unusual species included *Cantharis figurata* Mann., *Chalcoides nitidula* (L.), *Byctiscus populi* (L.), *Caenorhinus tomentosus* (Gyll.), *Deporaus mannerheimi* Humm., *Polydrusus flavipes* (Deg.) and *Bruchidius unicolor* (Ol.) (*cisti* auct. nec F.) from broom.

The meeting concluded with tea at The Dukes Head.

HORSELL COMMON, SURREY—16th June 1957.

Leader, Dr. C. G. M. de Worms.

Exceptionally fine weather welcomed the seven people who attended this meeting. Fortunately the very warm air and sunshine was tempered by a strong breeze, which made collecting pleasant and bearable. As soon as the party reached the Common, a survey was made of the best part of the heather area including the small marshy area in the centre of the region. The most notable Lepidoptera on the wing were *Perconia strigillaria* Hb. and *Diacrisia sannio* L. of which several females were obtained. *Anarta myrtilli* L. was also well on the wing. Early on, a fine female *Hyloicus pinastri* L. was found at rest on a small pine trunk, and a little later *Apatele leporina* L. was also spotted in a similar position. In some recently cut birch stumps empty pupa cases of *Aegeria culiciformis* L. were noted together with some first year larvae. Butterflies were by no means numerous; *Coenonympha pamphilus* L. together with *Ochlodes venata* Br. & Grey were the commonest species. Among the Microlepidoptera the most interesting item was the finding of swellings in the stem of *Chamaenerion angustifolium* (L.) Scop. (Rosebay Willow-herb) made by the larvae of *Mompha nodicolella* Fuchs. Other Lepidoptera noted included *Lycophotia varia* Vill., *Drepana falcataria* L., *Ellopia fasciaria* L., *Euzophera consociella* Hb. larvae on oak, *Dioryctria fusca* Haw., *Crambus pascuellus* L., *Evetria buoliana* Schiff., *E. pinivorana* Zell., *Ancylis unguicella* L., *Argyroploce corticana* Schiff., *Telphusa proximella* Hb. and *Depressaria umbellana* Steph. larvae on gorse. Among the *Odonata* seen was the local *Orthetrum cancellatum* (L.).

The very pleasant day concluded as usual with a very welcome tea at the Wheatsheaf Hotel in Horsell.

WROTHAM, KENT—23rd June 1957.

Leader, Miss C. A. McDermott.

Nine members and their friends attended this meeting. The weather was warm and sunny, the ground being too dry for notable captures of Coleoptera.

A very rare moth, *Hypercallia christiernana* L., was captured by Mr. M. G. Morris. The re-occurrence of the species in this locality is of considerable interest to entomologists, as it used to be taken hereabouts sixty or more years ago. There has been only one recent capture and that was at East Malling, Kent, a few years ago.

Other species of Lepidoptera noted were: *Aglais urticae* L., *Nymphalis io* L. (larvae), *Maniola jurtina* L., *Aphantopus hyperantus* L., *Coenonympha pamphilus* L., *Lycaena phlaeas* L., *Polyommatus icarus* Rott., *Lysandra bellargus* Rott., *Pyrgus malvae* L., *Ochlodes venata* Br. & Grey, *Chaonia* (*Drymonia*) *ruficornis* Hufn. (larvae), *Euclidimera mi* Clerck, *Ectypa glyphica* L., *Herminia barbalis* Clerck, *Iodis lactearia* L., *Sterrha fuscovenosa* Goeze, *Scopula ornata* Scop., *Anaitis plagiata* L. (larvae), *Zygaena filipendulae* L.

Coleoptera reported included: *Nebria brevicollis* (F.), *Notiophilus biguttatus* (F.), *Malthinus flaveolus* (Payk.), *M. fasciatus* (Ol.), *M. balteatus* Suff., *Malthodes marginatus* (Lat.), *Cryptocephalus aureolus* Suff., *C. hypochaeridis* (L.), *C. parvulus* Muel., *C. pusillus* F.

The best botanical find was a clump of five flower-stems of *Orobanche elatior* Sutton (Tall Broomrape).

After some much needed tea at the Pilgrims Rest, Wrotham, some of party enjoyed watching a local cricket match.

HORSLEY, SURREY—30th June 1957.

Leader, Mr. D. Thorpe-Young.

Seven people attended this meeting in exceptionally hot and humid conditions. The party proceeded via the footpath across the fields to St. Mary's Church and then to the Sheepleas by the path alongside the Church.

Eggs of *Hamearis lucina* L. were found on *Primula veris* L. (Cowslip) and batches of *Macrothylacia rubi* L. eggs were found on grass stems; unfortunately the latter were heavily parasitized. The moths *Colostygia olivata* Schiff. and *Diacrisia sannio* L. were disturbed from the herbage. Blotched leaves of *Chamaenerion angustifolium* (L.) Scop. (Rosebay Willow-herb) were collected from which it was hoped to breed *Mompha schrankella* Hb. Of particular interest to coleopterists was the capture of *Tomoxia biguttata* Gyll.

Owing to the tiring nature of the weather the meeting was terminated early.

BETCHWORTH, SURREY—7th July 1957.

Leader, Mr. R. Fairclough.

Three members met the leader at the station and went to the downs through the chalk workings. Three others turned up in the course of the day, one as late as tea-time, at the "Barley Mow". The weather was a pleasant contrast to the heat of the past week, though a stiff breeze made the catching of small insects difficult. Only one of the juniper-feeding microlepidoptera, *Dichomeris marginella* F., was seen, while *Setina irrorella* L., usually common here, was not found at all. Species of Lepidoptera recorded were: *Pararge aegeria* L., *Maniola*

jurtina L., *Coenonympha pamphilus* L., *Aphantopus hyperantus* L., *Aglais urticae* L., *Polygonia c-album* L., *Lysandra coridon* Poda, *Pieris brassicae* L., *P. napi* L., *Thymelicus sylvestris* Poda, *Eilema deplana* Esp., *Melanthia procellata* Schiff., *Acasis viretata* Hb., *Microstega hyalinalis* Hb., *Pempelia ornatella* Schiff., *Phycita semirubella* Scop., *Oxyptilus parvidactyla* Haw., *Phalonia tesserana* Treits. and *Coleophora frischella* L.

BOOKHAM, SURREY—13th July 1957.

Leader, Mr. F. Rumsey.

Seven members attended this meeting, the weather being showery, with sunny intervals.

A number of Lepidoptera were reported, including the following: *Argynnis paphia* L., *A. cydippe* L., *Polygonia c-album* L., *Aglais urticae* L., *Vanessa atalanta* L., *Limenitis camilla* L., *Pararge aegeria* L., *Aphantopus hyperantus* L., *Lycaena phlaeas* L., *Sarrothripus revayana* Scop., *Hydriomena furcata* Thunb., *Nymphula nymphaeata* L., *Hapalia lutealis* Hb., *Psammotis* (*Microstega*) *crocealis* Hb., *Platyptilia pallidactyla* Haw., *Aleimma* (*Tortrix*) *loeflingiana* L., *Eucosma communana* Haw., *E. scopoliana* Haw., *Brachmia rufescens* Haw., *Depressaria ciliella* Staint. (larvae on *Angelica sylvestris* L.), *Argyresthia nitidella* F., and *Lithocolletis emberizaepennella* Bouch.

Only three beetles were reported, *Galeruca tanaceti* (L.), *Cassida viridis* L. and *C. rubiginosa* Muell.

An oak post was almost completely covered with tiny black flies, many thousands in number. As the breeze caught one side or other of the post the flies cascaded off in a silver stream, only to return immediately. A few collected at random were sent to Mr. Parmenter who said they were all males of *Psectrosciara soluta* (Loew.).

Among many interesting plants seen were the following: *Ranunculus sceleratus* L. (Celery-leaved Crowfoot), *R. flammula* L. (Lesser Spearwort), *Conium maculatum* L. (Hemlock), *Angelica sylvestris* L. (Angelica), *Apium nodiflorum* (L.) Lag. (Marshwort), *Torilis japonica* (Houtt.) DC. (Upright Hedge-parsley), *Veronica scutellata* L. (Marsh Speedwell), *Stachys palustris* L. (Marsh Woundwort), *Achillea ptarmica* L. (Sneezewort), *Sparganium ramosum* Huds. (Branched Burreed), *Typha latifolia* L. (Great Reedmace), *Isolepis setacea* (L.) R.Br. (Bristle Club Rush), and *Alisma plantago-aquatica* L. (Water Plantain). Fungi: *Boletus chrysenteron* (Bull.) Fr., *Collybia fusipes* (Bull.) Berk., *Epichloe typhina* Tul. (on grass), and *Hypholoma candolleanum* Fr.

The birds were rather silent but the Yellow Bunting was heard singing frequently; the Blackcap sang a little and the Grasshopper Warbler was heard once. Other birds seen or heard were the Greenfinch, Linnet, Magpie, Jay, Whitethroat, Mallard, Moorhen and Kestrel.

An excellent tea was provided at the Bookham Grange Hotel.

CHIDDINGFOLD, SURREY—28th July 1957.

Leader, Mr. R. M. MERE.

Some sixteen members and friends met at Witley Station and the party proceeded to Hog Wood. The weather was overcast most of the time, the sun appearing occasionally for a few minutes. The single noteworthy insect taken was a gynandromorph *Argynnis paphia* L. in excellent condition. *Limenitis camilla* L. was occasionally seen, but on the whole insects were scarce.

Other Lepidoptera recorded were *Evergestis straminalis* Hb. commonly, *Oidaematophorus tephradactylus* Treits., *Eucosma latiorana* H.S., *Ancylis lundana* F., *Nemotois minimella* Zell., and a number of common insects. Larvae of *Choreutis myllerana* F. were found on *Scutellaria galericulata* L. (Skullcap), *Depressaria purpurea* Haw. on *Chervil*, *Orthotaelia sparganella* Thunb. in stems of *Sparganium* which later produced several very dark imagines, *Acrolepia pygmeana* Haw. on *Solanum dulcamara* L., and *Epermenia illigerella* Hb. on unopened flower heads of *Angelica*.

Among Coleoptera *Tomoxia biguttata* (Gyll.), *Chrysolina menthastri* (Suff.) and *Phyllobrotica quadrimaculata* (L.) were noted.

Tea was very kindly provided at Mill House, Chiddingfold, by Mrs. Mere.

HURTMORE—20th July 1957.

Leader. Dr. B. P. MOORE.

Seven members attended this meeting but activity before lunch was severely restricted by repeated heavy showers. Brighter weather in the afternoon enabled the party to enjoy the attractive walk along the river Wey to Eashing Village. Serious collecting was, however, impossible owing to the wet state of the herbage.

Perhaps the most interesting find of the day was the tortoise beetle *Cassida viridis* L., which occurred plentifully in all stages on *Stachys sylvatica* L. (Hedge Woundwort) growing in a dry situation. This species usually frequents *Mentha aquatica* L. (Water Mint), *Lycopus europaeus* L. (Gipsy-wort) and other waterside Labiatae.

Several heads of *Heracleum sphondylium* L. (Cow Parsnip) with deep purplish flowers were much admired, but the large exotic species observed on previous visits was not in evidence this year. Other interesting plants included: *Spergula arvensis* L., *Eupatorium cannabinum* L., *Lycopsis arvensis* L., *Geranium columbinum* L., *Valeriana officinalis* L., *Cymbalaria muralis* Baumg. (on Eashing Bridge) and *Spiraea salicifolia* L. The fungi *Marasmius rotula* Scop. and *Epichloe typhina* Tal. were abundant, the latter occurring on various grasses.

Of the Lepidoptera, the following were reported: *Polygonia c-album* L., *Lycaena phlaeas* L., *Strymonidia w-album* Knoch, *Chiasmia clathrata*

L., *Platyptilia pallidactyla* Haw., *Stenoptilia pterodactyla* L., *Callimorpha jacobaeae* L. (larvae) and *Depressaria angelicella* Hb. (larvae).

BUXTED, SUSSEX—4th August 1957.

Leader, Mr. D. A. ODD.

Although only six members turned up, including the leader, a most enjoyable day was held by all, the weather was delightful and the early part of the day was spent in Waste Wood by kind permission of Sir Edward Maufe; the district is rich in Fauna and Flora. Most of the area is private property and not explored by the field naturalist; trout swim freely in the delightful unspoilt streams and the Badger rears its young in the sand banks among the tall beech trees.

The following Lepidoptera imagines were seen: *Polygonia c-album* L., *Aglais urticae* L., *Pieris napi* L., *P. rapae* L., *P. brassicae* L., *Gonepteryx rhamni* L., *Polyommatus icarus* Rott., *Aphantopus hyperantus* L., *Thymelicus sylvestris* Poda, *Coenonympha pamphilus* L., *Pararge aegeria* L.,*P. megera* L., *Lycaena phlaeas* L., *Argynnis paphia* L., *Maniola tithonus* L., and *Xanthorhoë fluctuata* L.

Coleoptera taken was as follows: *Stenolophus mixtus* (Herbst), *Acupalpus dubius* Schil. (*luridus* auct nec Dej.), *A. meridianus* (L.), *Bradycellus sharpi* Joy, *Pterostichus* (*Feronia*) *nigrita* (F.), *Agonum assimile* (Payk.), *A. ruficorne* (Goeze), *A. obscurum* (Herbst) (*oblongum* (Sturm)), *Helophorus brevipalpis* Bedel, *Tachyporus solutus* Er., *Tachinus signatus* Grav. (*rufipes* (Deg.)), *Xantholinus linearis* (Ol.), *Gyrohypnus* (*Othius*) *myrmecophilus* (Kies.), *Stenus brunnipes* Steph., *S. fuscicornis* Er., *S. nanus* Steph., *S. flavipes* Steph., *S. tarsalis* Ljungh., *Pselaphus heisei* Herbst., *Kateretes rufilabris* Lat., *Meligethes viridescens* (F.), *M. atratus* (Ol.), *Helodes minuta* (L.), *Leiopus nebulosus* (L.), *Crepidodera transversa* (Marsh.), *Cryptocephalus parvulus* Muel., including an all black variety with the many blue examples on poplar, *Lema lichenis* Voet., *Donacia simplex* F., *Phyllodecta vitellinae* (L.), *Sphaeroderma testaceum* (F.), (*cardui* (Gyll.)), *Psylliodes napi* (F.), *Apion miniatum* Germ., *A. loti* Kirby, *A. curtirostre* Germ., *Strophosmus melanogrammus* (Forst.), *S. capitatus* (Deg.) and *Liosoma deflexum* (Panz.).

Very few micros were recorded, but some Pyralid larvae found on *Solidago virgaurea* L. (Golden rod) were thought to be the local *Perinephela terrealis* Treits. A fine varied series of *Acleris* (*Peronea*) *hastiana* L., were subsequently bred from larvae found in spun sallow leaves, and a few *Anania funebris* Stroem. were taken.

Among the lepidopterous larvae *Cucullia asteris* Schiff. in various stages of growth was taken on *Solidago virgaurea* L. flower heads.

At the end of the day tea was generously provided by Mrs. Odd and thoroughly enjoyed by all.

BURNHAM-ON-CROUCH, ESSEX—10th August 1957.

Leader, Mr. S. Wakely.

This meeting was held in showery weather and was attended by eight members. Alighting from the train at Althorne, the party proceeded to the north bank of the River Crouch. Larvae of *Thetidia* (*Euchloris*) *smaragdaria* F. were one of the first finds and were not uncommon on *Artemisia maritima* L. Several sharp rain showers halted activities once or twice, but there were plenty of bright intervals. Larvae of *Cucullia asteris* Schiff. were to be had in fair numbers on plants of *Aster tripolium* L. and some tortrix larvae were found spun up in the tips of the same plant. It was hoped these latter would be *Eucosma heringiana* Jäckh. (a species which has appeared in our list wrongly named as *E. rubescana* Constant). About a dozen small larvae of *Gastropacha quercifolia* L. were beaten from blackthorn by one of the more industrious members of the party. A fine larva of *Apatele tridens* Schiff. was also captured. Larval cases of the local *Coleophora artemisiella* Scott. were found on *Artemisia maritima* L. *Lithocolletis schreberella* F. larvae were plentiful in leaves of elm. The weather was not good enough for much to be seen on the wing, but several *Agapetes galathea* L. were noted.

The following Coleoptera were reported by Mr. E. Lewis:—*Bembidion lunulatum* (Fourc.), *B. normannum* Dej., *B. minimum* (F.), *Pogonus chalceus* (Marsh.), *Dicheirotrichus gustavi* Crotch, *Tachyporus hypnorum* (F.), *Conosomus lividus* Er., *Megasternum obscurum* (Marsh.), *Anthicus instabilis* Schmidt, *A. antherinus* (L.), *Corticaria pubescens* (Gyll.), *Subcoccinella vigintiquattuorpunctata* (L.), *Coccinella undecimpunctata* L. and *Tytthaspis sexdecimpunctata* (L.).

It had been intended originally to walk to Burnham-on-Crouch, but this plan was abandoned and the party returned to Althorne. No place for tea being available, the party caught the 5.30 p.m. train back to London, well satisfied with their captures.

OCKHAM, SURREY—18th August 1957.

Leader, Mr. E. Trundell.

Thirteen members and friends attended this meeting. The weather was somewhat dull for most of the day and the shortage of insects unusual for the time of the year. Not a single butterfly was seen until the late afternoon and a total of only four common species noted. Last year's extensive fires on Ockham Common, leaving large areas still almost bare, must have contributed to this scarcity of insects.

The micro-lepidopterists had a fairly successful day. A pair of *Gracillaria populetorum* Zell. were taken *in cop.* as well as larvae of the same species on birch.

Other Lepidoptera taken included: *Crambus hamellus* Thunb., *Eucosma penkleriana* F.R., *Gracillaria betulicola* Her. larvae on birch,

BURNHAM-ON-CROUCH, ESSEX. 10th August 1957.

Back row (left to right): J. L. Henderson, E. Lewis, L. T. Ford, E. E. Syms.
Front row (left to right): S. Wakely (*leader*), B. F. Skinner, J. M. Chalmers-Hunt.

CHIPSTEAD, SURREY. 5th October 1957.

(Left to right): W. H. Spreadbury (*leader*), F. Rumsey, H. G. Tunstall, T. R. Eagles, J. R. Eagles, B. F. Skinner, F. T. Vallins.

G. stigmatella F. larvae on sallow, *Lithocolletis geniculella* Rag. larvae in leaves of sycamore, and *Acrolepia pygmeana* Haw. larvae in leaves of *Solanum dulcamara* L.

The areas worked consisted of the woodlands and open country of the Common in the morning and the region around the large pond at Wisley in the afternoon.

Tea was taken in the Railway Café at Effingham.

COSFORD MILL, SURREY—25th August 1957.

Leader, Mr. F. T. VALLINS.

A very strong wind blew all day but this was hardly noticed by the party of 14 members and friends, as the mill grounds are very sheltered, being almost surrounded by higher country. Although the day was rather cloudy, it was nevertheless pleasantly warm, and interesting species of plants and insects were found.

The two most noteworthy flowering plants were *Chrysosplenium oppositifolium* L. (Golden saxifrage), and *Serratula tinctoria* L. (Sawwort), the latter being the food plant of *Acosmetia caliginosa* Hb., which may yet be discovered in this locality. There were beautiful clumps of *Athyrium filix-femina* Roth. (Lady Fern) and of *Polypodium vulgare* L. (Polypody).

Mr. Loarridge cleared a path to a promising looking fallen tree trunk and revealed a large cluster of the fungus *Clavaria stricta* (Pers.) Fr., and a lovely little greenish-yellow fungus which was later identified as *Pluteus leoninus* (Schaeff.) Fr.

The spectacular Bryophyte, *Conocephalum conicum* (L.) Dum. was growing luxuriantly on damp vertical walls near the site of the millwheel and at the sluices.

A number of interesting lepidopterous larvae were found, the most important being a specimen of the rare micro *Gracillaria falconipennella* Hb. in a rolled alder leaf. This was not recognised at the time and was assumed to be a larva of *Gracillaria elongella* (L.), which species was found commonly on alder. *G. falconipennella* does not seem to have been recorded from England for many years.

Other larvae were: a single *Tethea duplaris* L. on alder, *Apatele leporina* L. also on alder, *Amblyptilia punctidactyla* Haw. and pupae on *Stachys sylvatica* L., *Acleris* (*Peronea*) *boscana* F. commonly on elm, *Mompha terminella* Westw. commonly in leaves of *Circaea* (Enchanter's Nightshade) and *Gracillaria stigmatella* F. on sallow.

A delightful tea was provided at the Mill by Mrs. Loarridge. This is the third year in succession during which the Society has been invited to Cosford Mill and warmly welcomed by the owners, Mr. and Mrs. Loarridge. The sincere thanks of the Society were expressed in a short, impromptu speech by the leader and the party then dispersed after a memorable and rewarding day.

CHILWORTH, SURREY—31st August 1957.

Leader, Mr. F. Rumsey.

A party of ten people met at Chilworth Station and were taken to the Blackheath area. Although there was very little sun quite a lot of interesting things were seen, which included the following Lepidoptera imagines: *Pieris rapae* L., *Vanessa atalanta* L., *Coenonympha pamphilus* L., *Eumenis semele* L., *Lycaena phlaeas* L., *Amathes c-nigrum* L., *Plusia gamma* L., *Crambus hamellus* Thunb., *Ypsolophus radiatellus* Don. and *Plutella maculipennis* Curt. A number of larvae were also seen, among which were reported an extra large example of *Biston betularia* L. 2½″ long beaten from birch, *Notodonta dromedarius* L., *Phalera bucephala* L., *Perconia strigillaria* Hb. and *Thera variata* Schiff.

A complete skin of a large snake was found amongst a heap of old sticks, and several cocoons of a leaf-cutting bee were found in a rotten birch.

A number of fungi were noted during the day, including: *Amanita muscaria* (L.) Fr., *A. rubescens* (Pers.) Fr., *Amanitopsis fulva* (Grev.) Rea., *Laccaria laccata* (Scop.) Cke., *Lactarius rufus* (Scop.) Fr., *Cortinarius multiformis* Fr., *Boletus edulis* (Bull.) Fr., *B. luteus* (L.) Fr., *B. variegatus* (Swartz.) Fr., *B. chrysenteron* (Bull.) Fr., *B. scaber* (Bull.) Krombh. and *B. versipellis* Fr.

Among the plants *Trifolium arvense* L. (Hares foot trefoil), *Cuscuta epithymum* (L.) Murr. (Common Dodder) and *Erigeron acris* L. (Blue Fleabane) were reported.

Lepidoptera reported but not noted above included: *Laothoë populi* L. larvae on aspen, *Agrotis puta* Hb., *Anarta myrtilli* L. larvae and imagines on heather, *Crambus inquinatellus* Schiff., *Stenoptilia zophodactyla* Dup., *Euxanthis angustana* Hb., *Acleris tripunctulana* Haw. (*Peronea fissurana* Pierce) larvae on oak, *Acleris* (*Peronea*) *ferrugana* Schiff. larvae on birch, *Laspeyresia ulicetana* Haw., *Aristotelia ericinella* Dup., *Gelechia diffinis* Haw., *Mompha raschkiella* Zell. larvae on Rosebay Willow-herb, *Gracillaria alchimiella* Scop. larvae on oak.

An excellent tea was obtained at Lockners Tea Room attached to the riding stables not far from the railway station.

MICKLEHAM, SURREY—7th September 1957.

Leader, Mr. T. R. Eagles.

Rain was falling during the train journey from London and it continued for a short time after the party had left the rendezvous. It then ceased and the day was fine. Moreover, the trees and plants soon dried out and collecting conditions became pleasant.

A handsomely coloured slow-worm (*Anguis fragilis* L.) was found in a stump near Burford Bridge. It was caught, examined and released.

There was a small crop of fruit on the Cherry-Laurels (*Prunus laurocerasus* L.) overhanging the lane leading up to the Downs, which were gathered for jam-making.

The following Lepidoptera were noted:—*Drepana lacertinaria* L. larvae on birch, *Cucullia absinthii* L. larvae on *Artemisia vulgaris* L. (Mugwort), near Burford Bridge, *Alispa angustella* Hb., one larva found in a Spindle berry, *Melanthia procellata* Schiff, larvae on *Clematis vitalba* L., *Perizoma bifasciata* Haw. larvae on *Bartsia*, *Argyrotoza latifasciana* Haw. (*Peronea schalleriana* auct) larvae on *Viburnum lantana* L. (Wayfaring Tree), *Acleris* (*Peronea*) *ferrugana* Schiff. larvae common on birch, *P. boscana* F., a few larvae on elm, *Acompsia cinerella* Clerck (an unusual date for this moth), *Blastobasis lignea* Wals., *Argyresthia semitestacella* Curt., *Lithocolletis geniculella* Rag. larvae on Sycamore, *Gracillaria auroguttella* Steph. larvae on *Hypericum*, *G. betulicola* Hering (larvae common on birch—one imago taken), *Eucosma penkleriana* F.R.

A section of the party searched for fungi. The most common species was *Collybia radicata* (Rehl) Berk. It was known that *Geaster coronatus* (Schaeff.) Lloyd occurred somewhere in the wood but the precise spot was not known. By a lucky chance it was found and carefully noted. Other fungi of interest noted were *Tricholoma grammopodium* (Bull.), Fr., *T. ionides* (Bull.) Fr., *Clitocybe odora* (Bull.) Fr. and *Hebeloma sinuosum* Fr.

Near Burford Bridge the plant *Geranium pyrenaicum* Burm. was in bloom. On the Downs *Campanula glomerata* L. and *C. rotundifolia* L. were in great abundance.

A fallen pigeon's nest was examined for beetles but apart from *Ontholestes tessellatus* (Fourc.) it yielded only two or three common species of Ladybird.

BENFLEET, ESSEX—15th September 1957.

Leader, Mr. C. L. NISSEN.

A party of three assembled at Benfleet station and were later joined by two other members. Due to the cloudy and windy weather there was very little on the wing, though specimens of *Lycaena phlaeas* L. and *Calothysanis amata* L. were noted. Larvae of the following species were found: *Euproctis similis* Fuessl. on *Prunus spinosa* L. (Blackthorn); *Macrothylacia rubi* L., a single example; *Discestra* (*Hadena*) *trifolii* Hufn. and *Pelurga comitata* L., both on *Atriplex*; *Loxostege palealis* Schiff. on seedheads of *Daucus carota* L. (Wild Carrot); *Myelois cribrella* Hb. in the seedheads of thistle; *Euxanthis straminea* Haw., *E. aeneana* L., many in roots of *Senecio jacobaea* L. (Ragwort); *Laspeyresia roseticolana* Zell. in wild rose fruits; *Goniodoma limoniella*

Staint. on sea lavender; *Tischeria angusticollella* Dup. in leaves of wild rose; and *Nepticula plagicolella* Staint. in the leaves of *Prunus spinosa* L. (Blackthorn).

HOLMBURY ST. MARY, SURREY—22nd September 1957.

Leader: Mr. F. M. Struthers.

After a wet and unpromising start, the weather cleared to a bright but cloudy day. Five attended the meeting, and although it was too wet to beat, the party was able to search for larvae.

Leaving the village, the party took one of the paths towards Leith Hill through the woods. Searching *Galeopsis tetrahit* agg. (Hemp Nettle) produced larvae of *Perizoma alchemillata* L. and larvae of *Perinephele lancealis* Schiff. were found in the slightly webbed leaves of *Teucrium scorodonia* L. (Wood Sage). Larvae of *Lithocolletis mespilella* Hb. were found in leaves of what was thought to be a Service tree, and *Tischeria complanella* Hb. in oak leaves. A solitary butterfly, *Pararge aegeria* L. was seen on the wing, also the micro *Lithocolletis trifasciella* Haw.

Members gathered flowers and seeds of *Solidago virgaurea* L. (Golden Rod) for larvae of *Eupithecia* species.

Tea was taken about 4.30 p.m. at the Holly Bush Café.

RIDDLESDOWN, SURREY—28th September 1957.

Leader, Mr. S. Wakely.

The seven members who met at Purley Station for this meeting decided to walk along the Godstone Road to the slopes of Riddlesdown. It was a grand sunny day and autumn larvae, particularly the micros, were in abundance. Several species of *Lithocolletis* were found in leaves of oak, hawthorn and whitebeam. A rather worn example of *Lysandra coridon* Poda was taken and several other common butterflies were seen. Larvae of *Eupithecia pimpinellata* Hb. were not uncommon on seeds of *Pimpinella saxifraga* L., and by filling bags with these seeds quite small larvae of this species were taken, together with numbers of larvae of the very local micro *Cataplectica profugella* Staint. Fruits of the Wild Rose yielded larvae of the Trypetid fly *Zonosema* (*Rhagoletis*) *alternata* Fall., while *Laspeyresia rufillana* Westw. larvae were common in the seedheads of *Daucus carota* L. (Wild Carrot). By beating the junipers a number of pupae of *Thera juniperata* L. were obtained. A single larval mine of *Lithocolletis scabiosella* Dougl. was found, showing that this local species still occurs in one of its old haunts. Larvae of *Coleophora potentillae* Staint. were found on *Poterium sanguisorba* L. (Salad Burnet), a very local species occurring regularly on Riddlesdown. The one member who used his beating tray was rewarded with several larvae of *Drepana binaria* Hufn. from oak, *Cilix glaucata* Scop. and *Bapta temerata* Schiff. from hawthorn, while the junipers produced for him larvae of *Gonodontis bidentata* Clerck and *Alcis* (*Cleora*) *repandata* L., as well as both larvae and pupae of *Thera juniperata* L. Other species noted were *Macrothylacia rubi* L., several larvae, *Anchoscelis litura* L., *Laspeyria flexula* Schiff., one larva, *Ligdia adustata* Schiff. larva on *Euonymus europaeus* L. (Spindle), *Cryptoblabes bistriga* Haw., one larva on oak, *Euxanthis aeneana* Hb. larvae in roots of *Senecio jacobaea* L. (Ragwort), *Acleris rhombana* Schiff. (*Peronea contaminana* Hb.), *Coleophora hemerobiella* Scop., one larva on *Malus sylvestris* (L.) Mill. (Crab Apple), *Ypsolophus radiatellus* Don., *Buccalatrix frangulella* Goeze larvae common on *Rhamnus cathartica* L. (Buckthorn), and *Tischeria complanella* Hb. larvae common in leaves of oak. The bug *Pantilius tunicatus* (F.) and the beetle *Miarus campanulae* (L.) were also noted, the latter as larvae and pupae in the seedheads of *Campanula rotundifolia* L. (Harebell).

Mr. R. W. J. Uffen reported hearing and taking the grasshopper *Roeseliana roeselii* (Hag.) and larvae of the micros *Antispila treitschkiella* F.R. on *Cornus sanguinea* L. (Dogwood) and *Nepticula centifoliella* Zell. on rose.

BANSTEAD WOOD, SURREY—5th October 1957.

Leader, Mr. W. H. Spreadbury.

Eight members enjoyed perfect weather for our first Fungus Foray in this area. More than 90 species, mostly Agarics, were recorded and special mention may be made of *Lepiota granulosa* (Batsch) Fr. sensu Lange, *Cantharellus cinereus* (Pers.) Fr., *Helvella crispa* Fr. and *Peziza aurantia* Pers. ex Fr. *Armillaria mellea* (Vahl.) Fr. in unusually great abundance was gathered for the pot.

Insects were scarce and only one *Polygonia c-album* L., one *Gonepteryx rhamni* L., a few *Pararge aegeria* L., a few *Coenonympha pamphilus* L., and two *Orgyia antiqua* L. were seen on the wing. An imago of *Tiliacea aurago* Schiff. was noted.

Beating for larvae yielded only a few *Lophopteryx capucina* L., *Bena fagana* F. (*prasinana* auctt. nec L.), *Cilix glaucata* Scop. and *Campaea margaritata* L. A larva of *Macrothylacia rubi* L. was seen, and larvae of *Eupithecia pimpinellata* Hb. were found on *Pimpinella saxifraga* L. The absence of other macro-lepidopterous larvae was remarkable. One imago of *Phlogophora meticulosa* L. was found at rest.

The 'micro' enthusiasts took a good many larvae, including *Thiotricha subocellea* Steph. on seed-heads of *Origanum vulgare* L. (Marjoram). Others were *Mompha raschkiella* Zell. on *Chamaenerion angustifolium* (L.) Scop. (Rosebay Willow-herb), *Coleophora potentillae* Staint. on *Poterium sanguisorba* L. (Salad Burnet), *C. hemerobiella* Scop. on hawthorn, *C. therinella* Tengst. on *Carduus* sp., *Cataplectica profugella* Staint. in seeds of *Pimpinella saxifraga* L., *Tischeria complanella* Hb. in oak leaves, *Scardia boleti* F. in the fungus *Polystictus versicolor* Fr., *Nepticula poterii* Staint. in leaves of *Poterium sanguisorba* L., *Euxanthis aeneana* Hb. in the roots of *Senecio jacobaea* L. (Ragwort), *Bucculatrix frangulella* Goeze on *Rhamnus cathartica* L. (Buckthorn), *Swammerdamia heroldella* Hb. on birch.

Coleoptera noted were *Necrophorus vespilloides* Herbst. in rotten fungus, *Galeruca tanaceti* (L.), *Pocadius ferrugineus* (F.).

One grasshopper *Gomphocerippus rufus* (L.) was taken in the *Teucrium* field. It was noted that there had been very little *Teucrium botrys* L. this year and the field was much overgrown with grass and coarse herbage, probably because of the absence of rabbits, which, however, appear to be returning.

Wild flowers still in bloom were *Gentiana amarella* (L.) H.Sm. (Autumn Gentian), *Solidago virgaurea* L. (Golden Rod), *Phyteuma tenerum* R. Schulz (Round-headed Rampion), *Teucrium botrys* L. (Cut-leaved Germander), *Blackstonia perfoliata* (L.) Huds. (Yellow-wort), *Picris hieracioides* L. (Hawkweed Ox-tongue), and *Erigeron acris* L. (Blue Fleabane).

Tea was taken at Dene Farm.

List of fungi:—*Amanitopsis vaginata* (Bull.) Roze, *A. fulva* (Grev.) Rea, *Lepiota amianthina* (Scop.) Fr., *L. cristata* (A. & S.) Fr., *Armillaria mellea* (Vahl.) Fr., *Tricholoma lascivum* (Fr.) Gillet, *T. terreum* Fr., *T. nudum* Fr., *Clitocybe clavipes* (Pers.) Fr., *C. infundibuliformis* (Schaeff.) Fr., *C. cerussata* Fr., *C. phyllophila* Fr., *C. expallens* (Pers.) Fr., *C. diatreta* Fr., *Laccaria laccata* (Scop.) Cke., *L. amethystina* (Vahl.) Cke., *Mycena polygramma* (Bull.) Fr., *M. galericulata* (Scop.) Fr., *M. inclinata* Fr., *M. filopes* (Bull.) Fr., *Collybia radicata* (Rehl) Berk., *C. fusipes* (Bull.) Berk., *C. butyracea* (Bull.) Fr., *C. atrata* Fr., *Marasmius peronatus* (Bolt.) Fr., *M. epiphyllus* (Pers.) Fr., *Hygrophorus eburneus* (Bull.) Fr., *H. virgineus* (Wulf.) Fr., *H. coccineus* (Schaeff.) Fr., *Lactarius torminosus* Fr., *L. plumbeus* Fr., *L. piperatus* (Scop.) Fr., *L. serifluus* (D.C.) Fr., *L. glycyosmus* Fr., *L. subdulcis* (Pers.) Fr., *Russula nigricans* Fr., *R. adusta* Fr., *R. rosea* Quél., *R. cyanoxantha* (Schaeff.) Fr., *R. emetica* (Schaeff.) Fr., *R. fellea* Fr., *R. atropurpurea* Kromb., *R. ochroleuca* Fr., *R. grisea* (Pers. ex Secr.) Fr., *Cantharellus cibarius* Fr., *C. cinereus* (Pers.) Fr., *Craterellus cornucopioides* (Linn.) Fr., *Pluteus cervinus* (Schaeff.) Fr., *Nolanea staurospora* Bres., *Pholiota spectabilis* Fr., *Hebeloma sinuosum* Fr., *H. crustuliniforme* (Bull.) Fr., *Naucoria cucumis* (Pers.) Fr., *Galera hypnorum* (Batsch.) Fr., *Cortinarius violaceus* Fr., *C. cinnamomeus* Fr., *C. scandens* Fr., *Inocybe pyriodora* (Pers.) Fr. var. *incarnata* (Bres.) Maire, *I. asterospora* Quél., *I. geophylla* (Sow.), Fr., *Paxillus involutus* (Batsch.) Fr., *Stropharia aeruginosa* (Curtis) Fr., *S. semiglobata* (Batsch.) Fr., *S. merdaria* Fr., *Hypholoma fasciculare* (Huds.) Fr., *H. hydrophilum* (Bull.) Fr., *Psilocybe spadicea* Fr., *Psathyrella gracilis* Fr., *P. conopilea* Fr., *Panaeolus campanulatus* (L.) Fr., *Psalliota silvicola* (Vitt.) Sacc., *P. xanthoderma* Genev., *Coprinus micaceus* (Bull.) Fr., *C. plicatilis* (Curt.) Fr., *Boletus luteus* (L.) Fr., *B. chrysenteron* (Bull.) Fr., *B. scaber* (Bull.) Krombh., *Fistulina hepatica* (Huds.) Fr., *Polyporus giganteus* Fr., *P. adustus* Fr., *P. hispidus* Fr., *P. betulinus* Fr., *Polystictus versicolor* Fr., *Clavaria cinerea* Pers., *C. inaequalis* Müll., *Lycoperdon pyriforme* Schaeff., *L. perlatum* Pers., *Helvella crispa* Fr., *Otidea aurantia* (Pers.) Fr., *Xylaria polymorpha* Grev., *Hypoxylon coccineum* Bull.

The organisers of the XI International Congress of Entomology wish the members' attention to be drawn to the following announcement:—

From 17th to 25th August 1960 there will take place in Vienna the XI International Congress of Entomology. Persons taking an interest in it and not having received a circular letter, are asked herewith to contact the secretary's office of the Congress, Vienna I, Burgring 7, by postcard as soon as possible. Further information will be sent to them immediately.

THE VARIATION OF EUCHLOË CARDAMINES L.

By Harold B. Williams, Q.C., LL.D., F.R.E.S.

Read 28th March 1957.

I do not propose in this paper to attempt a general review of the variation of this species. I did make such an attempt over 40 years ago (*Trans. Lond. nat. Hist. Soc.*, 1915, p. 62) and this was brought up to date by Lempke in 1933 (*Lambillionea* **33**: 184). I shall comment on some of his conclusions. There are, however, a number of forms which are not completely known or understood and I think it might be of interest to make a few observations on these. It is not my intention to deal in detail here with gynandromorphs, having it in mind to consider them separately. It may be sufficient to say that there are a very great number of unrecorded examples and that those known to me range from apparent males with a minute mark or splash of female colour to apparent females with a trifling insertion of male tissue. There is a remarkably small proportion of halved examples; for example, in my own series there are two halved specimens, two which are halved except for a small insertion of male tissue on the female side or female tissue on the male side respectively, and fifteen mixed ones. The two examples which are not quite regularly halved are figured on Plate 5, figs. 7, 8.

I confess that I find the smallness of this proportion of halved examples a remarkable fact, though I have not satisfied myself as to its significance. By the kindness of the Trustees, my series is now housed in the British Museum at South Kensington, where it may be seen by those interested.

The first group of forms which I should like to discuss concerns the variation of the orange apical blotch.

I. In *Rhopalocera Palearctica*, 1911, p. 342, Verity describes ab. *andromorpha* as follows:—

> "La coll Bang-Haas contient une ♀ de cardamines provenant de Petersdorf (Basse Autriche) qui est remarquable en ce que toute la partie de l'aile occupée chez le ♂ par la tache aurore est parsemée très legérément d'écailles de cette couleur".

There is a reference to Pl. LXVIII, fig. 27, but this figure is of a female of *Leptidea sinapis* L. and there is no figure of *cardamines* on the plate to which the description could possibly relate. The description, however, is perfectly clear and the name is no doubt valid.

I have two British examples agreeing exactly with this description. One very fine specimen was bred by the Rev. G. H. Raynor, 18.v.17, at Hazeleigh, Essex, and the second, rather smaller, was taken by H. Massey at Folkestone, Kent, in 1901. Each of these has the powdering of orange scales described by Verity, and in each example these scales extend into the inner half of the black apical mark.

I am inclined to regard these examples as intersexes.

II. The next form has the orange colour absent on the upper surface only and on one side of the insect only. There is an excellent figure of such an example, taken at Tring on 1st June 1899, in Frohawk's *Natural History of British Butterflies*, Pl. 7, fig. 20. In this example the orange colour is absent on the right upper side and it must for a long time have been regarded as unique. However I have three others: —

- (i) Right forewing lacks orange on upperside, taken at Llanrwst, Denb., June 1941, by W. Bastable.
- (ii) Left forewing lacks orange on upper side, taken at South Hyde, Cheshire, 17.vi.23, by Ernest Wallace.
- (iii) Left forewing lacks orange on upperside, origin unknown, ex Bright coll.

There is an interesting note in *Entom.* **12**: 181 (1879) by William Dean of Epping. He says: "On June 6, 1879, was captured, by a friend of mine, a male *A. cardamines* with the orange only on the right wing; the left wing white with the black spot, and dark on the edge. This is, I believe of unusual occurrence." This may have been another example of the curious form just discussed, but I think was more probably a gynandromorph.

In the British Museum Mr. Howarth called my attention to a *cardamines* labelled "Labrador". The insect came from the Warburg coll., as a halved gynandromorph, right side male, left female. However, it was quite obvious that the left side was as male as the right, and we looked at the underside to see if this was yet another example of the strange form under discussion. The orange patch was absent on the underside also, but what should have been green marbling on the underside of the left hind wing was of a grey colour. Examination under the microscope showed that the fringes on the side with no orange were matted on both fore and hindwings, and without doubt the example is an artifact. I must add that the provenance of the insect is open to the very gravest suspicion. I do not pretend to an exhaustive knowledge of the distribution of *E. cardamines*, but I do not believe it occurs in Labrador.

I think it is clear that the abnormal form under discussion is a recurrent one, though it is exceedingly rare. I may say in passing that no examples other than the four mentioned above and one very curious one to be mentioned later are known to me in *cardamines*, and that it appears that bilateral examples do not exist. At any rate, none is known to me, and one supposes that it must have a genetic origin, but I will revert to this question later.

I think I ought at this stage to refer to similar phenomena in other species, and in the first place to a well-known one in *Aphantopus hyperantus* L. In *Entom.* **30**: 49, fig. 1 shows a curious form in which the underside of the right wings is blackened, though the veins are lighter than usual, and the ocellated spots are replaced with white dots as in ab. *coeca*.

I at one time possessed two examples of this form, and there are two in the Rothschild-Cockayne-Kettlewell collection at Tring. In each case the aberrant form occurs on one side of the insect only, and again no bilateral example is known.

The two examples at Tring are most interesting. As in my own *cardamines* the aberrant form may occur on either side. The Tring examples of *hyperantus* are:—

(i) Aberrant on the right side. Taken at Pamber Forest, Berks., 19.vii.47 by Miss E. M. Gibson. Figured 1951 *Proc. S. Lond. ent. nat. Hist. Soc.*, **1949-50**: Pl. 2, fig. A.).

(ii) Aberrant on the left side. Taken at Pinnook Wood, New Forest, Hants., July 1934, by Mrs. P. Nagele.

The late Dr. E. A. Cockayne told me that there were some examples among moths in the Tring collection, but we never had an opportunity of making a complete list of these. However, there is an example of *Aethalura punctulata* Schiff., which he thought must be such an example. The left side is completely melanic, and no insect resembling the left side has ever been taken in this country. The insect was taken by K. F. M. Murray at Bracknell, Berks., 6.vi.24. The difficulty here is that a melanic form, ab. *obscurata* Paux is described *Bull. Sci. Fr. et Belg.* 1901, **35**: 587. As no such melanic form is known in England the question whether this insect is another example of the phenomenon under discussion must be reserved.

An attractive explanation of these curious insects, though not necessarily a correct one, is that they originate in binucleate ova, the resulting insect being halved, though of one sex, and that the aberrant side is of a form which is normally lethal and, therefore, is not viable if present bilaterally. I content myself with calling attention to the possibility but it would be unwise to discuss it further in the present state of knowledge. Too few examples of this exceedingly rare phenomenon are known. It may, however, be wise to call attention to a serious difficulty in accepting this hypothesis. Binucleate ova are, of course, known to exist. There are, indeed, gynandromorphs which can have arisen in no other way, for example, a *Bupalus piniaria* L. I bred a few years ago in which the female parts show the characters of a rare recessive aberration. Nevertheless, such ova, though the production of them is evidently genetically controlled and hereditary, are of very great rarity. If, therefore, the asymmetrical insects under discussion originate from such ova the gene responsible for their occurrence, though lethal, must be exceedingly common and destructive, and one would prefer an alternative explanation of the occurrence of these forms.

Before leaving this subject, I must refer to a fourth example in my series of *cardamines*. This is a male bred in North Kent in May 1951 by L. H. Newman. At first glance it could be taken for a mixed gynandromorph, but it is evidently entirely male. The left forewing has a normal orange blotch except for some streaks in the costal area, which are uncoloured on the upper side. On the right upper side the orange blotch is absent except for some orange spots between the discoidal and the costa and a large patch (partly absent through damage) on the outer margin below the discoidal. The orange areas on the underside are normal on both wings. This is the only example of this phase of variation known to me in which the division between the two parts is not uniformly on the central line. The existence of such an example is not necessarily inconsistent with the possibility discussed above.

III. The next form which I think calls for attention and which is perhaps appropriately mentioned at this stage is the male insect in which the orange apical blotch is entirely absent, above and below. There were two such examples in the Bright collection, both of which are now in Wales, and in one of them the white scales replacing the orange differ from those of the other parts of the wing, so that there is a distinct difference in appearance between the part of the wing which one would expect to be orange and the basal part of the wing. The second has the area as white as the rest of the wing, with no trace whatever of orange or any other colour.

Two somewhat similar forms have been described:—

(i) ab. *detersa* Verity 1908 (*Rhop. Pal.* p. 191) described as having the orange spot almost completely wanting. No further details are given.

(ii) ab. *transvestita* Müller 1932 (*Int. ent. Z.* Guben **26**: 155) described as having the orange-red colour of the forewings indicated only by a very pale grey shade. This is possibly very similar to the first of the two mentioned above.

I have one in my own series similar to the second of the "Bright" examples mentioned. It has no trace or indication of the orange spot. It was taken at Barnsley by J. Harrison in 1906. On the underside of the forewings this example shows the yellow basal suffusion characteristic of ab. *citronea* Wheeler 1903 (*Butts. Switz.*, p. 64).

I think this form should be named, and I therefore describe it as ab. **decolorata** ab. nov.

Male, with no trace whatever of the orange apical blotch above or below.

♂ holotype, Barnsley, 1906, taken by J. Harrison. H. B. Williams coll. (Pl. 5, fig. 1).

IV. Males with the apical blotch of a yellow colour or of a paler orange than is normal are not uncommon and names have been given to more than one of these forms. A very distinct and apparently very rare one is ab. *flavido-virescens* Obth. in which the apical blotch is of a greenish yellow, but apart from this example these pale forms seem to me to grade evenly from a clear yellow to the normal orange, and in my own series of some 20 examples I have not attempted to distinguish any form other than the clear yellow *aureoflavescens* Ckll. 1888, *Entom.* **21**: 189, and ab. *salmonea* Obth., 1909, *Lep. Com.*, **3**: 140. Possibly the extreme forms are rare, but many have been recorded and many others exist. There is a particularly fine series at Tring.

V. There is an interesting form varying from the typical in the other direction, i.e., the orange blotch is of an abnormally deep, almost brownish, colour. This, I think, is ab. *buschmanni* Müller (1930 (*Int. ent. Z.* **24**: 153) and I have two examples, one taken at Witley, Surrey, by T. C. B. Craske on 11.v.35 and the other at Rayleigh, Essex, by J. F. Johnstone on 15.v.15.

VI. The next group of aberrations on which a few words may be said concerns the variation of the discoidal spot. This, in the male, may be entirely absent, ab. *immaculata* Pabst 1884 (*Berl Naturw. Ges. Chem.* **1884**: 16). I suspect this to be a very rare form, but I have four British examples:—

(i) North Kent, June 1918, L. W. Newman.
(ii) Brampton, Hunts., 5.v.28, G. H. Raynor.
(iii) Durham, ex Maddison coll.
(iv) Shelford, Cambs., May 1918, H. P. Jones (Plate 5, fig. 2).

VII. An effective contrast to the last-mentioned form is provided by examples in which the spot is very much enlarged. These are not at all rare, but I have one example in which the spot is enormously enlarged and extended towards the base of the wing, which it very nearly attains. (Pl. 5, fig. 4). This was taken by J. Shepherd, Hunts., May 1911. I have never seen a similar example.

VIII. An extremely interesting form was described by Raynor in *Ent. Rec.*, **18**: 298, as ab. *dispila*:—

> "Normal on the upperside, but on the underside of each forewing there is beneath the usual grey-black discal spot an oblong blotch of similar colour and of about the same size".

This is a rather common form, and the extra blotch or spot varies considerably in size and shape. In the most extreme example I have seen, a female bred by S. G. Castle-Russell ex Cranleigh ovum in 1955 there is, in addition to the double mark below the discoidal a trace of a third one in the interneural space below, with scattered black scales extending from this to the base.

Raynor says of the specimen he describes "I bred it on May 21st, 1900, from a larva found here (i.e., at Hazeleigh) the previous July" and he adds that he knows of one other example.

I acquired Raynor's series before the first world war and it contained two examples of this form, one of which is labelled "Colchester, bred Harwood, May 1900", but there was no specimen corresponding in date, etc., with the description. It seems clear that in 1900 Raynor had only one example, but there is no evidence that he acquired Harwood's example before writing the note in *Entomologist's Record.* My specimen, therefore, may or may not be the type, more probably not. If it is not, the type appears to have been lost.

IX. It is perhaps worthwhile to deal shortly with a series of forms with a varying degree of darkening of the costa. In my paper in 1915

I described and named ab. *caulotosticta* in which the forewing has the discoidal spot very large and branched, the upper portion being extended along the subcostal vein towards the base. There is here no costal suffusion and I evidently had not met with such forms in 1915. They are, however, not uncommon. Numerous names were given to such forms in the 1920's and Lempke has reduced these to two forms, i.e., *costaenigrata* Closs 1921 (*Int. ent. Z.* **15**: 83) of which he considers *umbratilis* Stephan 1923, *nigroconjuncta* Uffeln 1926 and *williamsi* Greer to be synonyms, and *schepdaeli* Derenne 1923 (*Rev. Soc. ent. namur* **23**: 25) in the latter of which the suffusion extends beyond the discoidal.

I have a natural affection for *williamsi*, the type of which was given to me by Greer and of which I have now another example, and I believe it to be distinct. The greater part of the basal portion of the forewing is suffused with black scales. (Pl. 5, fig. 6).

X. I may perhaps conclude with a few observations on homoeosis in this species. The most outstanding example known is perhaps that figured by Rye (1895 *Handbook*, Pl. IV, fig. 4), which has a considerable area of orange near the apex of the left hindwing. This example is now in my collection.

It is a remarkable fact, and possibly in no way significant, that the other examples of homoeosis in this species known to me have a small area of the green and white coloration of the hindwing underside in the orange blotch of the forewing underside. I have two such examples, one taken at Bexley, Kent, by L. T. Ford in May 1941, the patch of hindwing coloration being between the discoidal and the apex of the right forewing, and another exactly similar taken at Swanley, 10.iv.45. There are two similar examples in the Tring collection.

We know so little of homoeosis that I have perhaps been wrong in expressing doubt about the significance of these numbers. In *Papilio machaon* L. I have four British examples with an area of forewing marking on one hindwing and three with similar areas on both hind wings, but a very fine one is recorded from Russia, in which there is an area of hindwing coloration, including the reddish spot at the tornal angle, reproduced on the forewing.

If homoeosis is genetically controlled, as it almost certainly is, it may well be that a particular manifestation of it becomes of rather frequent occurrence in a particular area. This, of course, does in fact happen. For example, in addition to my *machaon*, one of which I bred myself, there are undoubtedly similar ones, and I believe all originated in L. W. Newman's Wicken strain. Again, many *Melitaea athalia* Rott. with a small area of hindwing colouring on the forewing (underside) have been taken at Blean, Kent, though similar ones no doubt occur elsewhere.

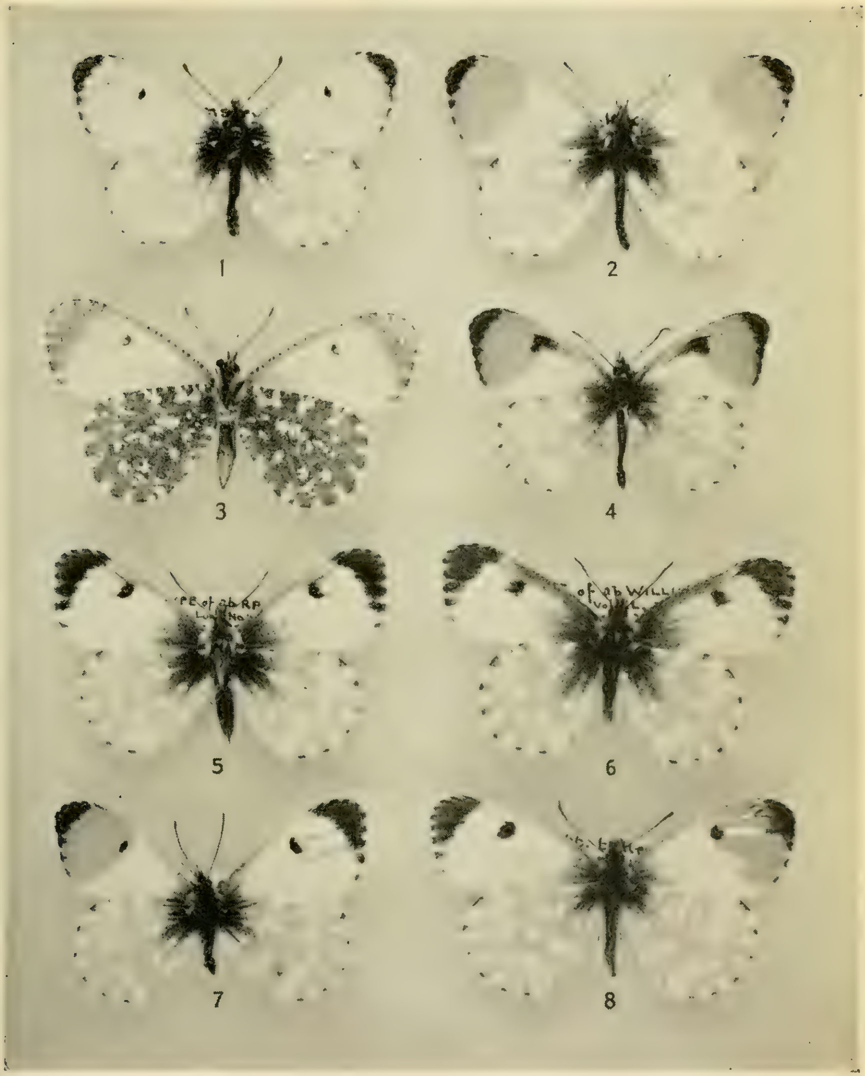
In the Plate accompanying this paper I have taken the opportunity of figuring the female holotype of ab. *radiata* Williams 1915 (fig. 5) and an example of the form with greatly increased green marbling on the underside, which I believe to be ab. *kutokovi* Krul. (Fig. 3).

I am indebted to the Keeper of the Department of Entomology, British Museum (Nat. Hist.), for the Photograph which is reproduced as Plate V, and to Mr. T. G. Howarth for constant help in the arrangement of material and verification of references.

EXPLANATION OF PLATE

1. *Euchloë cardamines* ab. *decolorata* Williams ♂ holotype. Barnsley, 1906.
2. *E. cardamines* ab. *immaculata* Pabst. N. Kent. June 1918. L. W. Newman.
3. *E. cardamines* ab. *kutokovi* Krul. N. Kent. June 1910, L. W. Newman.
4. *E. cardamines* ♂ with greatly enlarged discoidal spot extending towards the base. Hunts. May 1911. J. Shepherd.
5. *E. cardamines* ab. *radiata* Williams ♀ holotype. Co. Sligo. Bred 2.v.15. H. B. Williams.
6. *E. cardamines* ab. *williamsi* Greer ♀ holotype. Co. Tyrone, Curglasson. 26.v.26. T. Greer.
7. *E. cardamines* gynandromorph. Left side entirely male, right side female with small areas of male tissue. Sussex. Ex. coll. W. Bennett of Brighton.
8. *E. cardamines* gynandromorph. Left side entirely female, right side male with small areas of female tissue. Oxshott, Surrey. Taken by B. S. Williams, 12.v.12.

All the above examples in H. B. Williams coll.



[*Photograph by the Brit. Mus. (Nat. Hist.)*]

NOTES ON THE HABITS OF SOME TRYPETIDAE (DIPTERA)

By M. Niblett, F.R.E.S.

During the many years that I bred flies of the Trypetidae, I have been struck by the great variations in the length of the larval and pupal periods, and those of the adult flies; this is to be found even with allied species and it is difficult to suggest a reason for it.

With one exception the species causing hard woody galls in flower-heads of the Compositae, emerge in June and July of the second year; these include *Urophora cuspidata* (Mg.) on *Centaurea scabiosa* L., *U. jaceana* (Her.) on *C. nigra* L., *U. solstitialis* (L.) on *Carduus nutans* L., *U. stylata* (F.) on *Cirsium vulgare* (Savi) Ten., and *Myopites blotii* Bréb. on *Pulicaria dysenterica* (L.) Bernh. The exception is *Myopites frauenfeldi* Schin. from *Inula crithmoides* L., which I have had emerge in August and September of the first year, followed by the remainder of the brood in June and July of the second year.

Most species causing galls on roots or stems have an entirely different life-history. The galls of *Paroxyna misella* (Loew) are formed on the stems of *Achillea millefolium* L. in June, and the flies emerge in the following month. *Oxyna flavipennis* (Loew) on roots of the same plant acts in a similar manner. I have found these galls from August to March and all contained only empty puparia, only those found in June had living larvae or pupae in them; from these the flies emerged in the following month. *Ditricha guttularis* (Mg.) makes galls on the stem base of *A. millefolium* and follows the same pattern. Here again, however, we have an exception, *Urophora cardui* (L.) which causes galls on the stems of *Cirsium arvense* (L.) Scop. in the summer, does not emerge until June and July of the following year.

There are several species whose larvae cause the flowers to remain closed, and to become swollen at the base; *Sphenella marginata* (Fall.) whose larvae may be found in flowers of several species of *Senecio* from July onwards, emerge in August and September of the first year; with *Hoplochaeta pupillata* (Fall.). The swollen flowers of *Hieracium* spp. have larvae in them from July to October, and sometimes larvae and pupae at the same time. The flies emerge from July to September of the first year, and in April and May of the second year.

There are several species whose larvae feed in stems without causing any swelling and pupate therein; the larvae of *Platyparea poeciloptera* (Schr.) feed and pupate in the stems of *Asparagus*, the flies emerging in June and July of the second year; those of *Oxyna parietina* (L.) in stems of *Artemisia vulgaris* L. emerge in the following May; *Ceriocera microceras* Her. in stems of *Centaurea scabiosa* L. emerge in July from larvae of the previous year. The larvae of *Trypeta falcata* (Scop.) feed at first in the root, and work up into the stem of *Tragopogon* spp. to pupate, the flies emerging in May and June of the second year.

Of the fruit feeding species whose larvae go down in the soil to pupate the larvae of *Gonioglossum wiedemanni* Lw. may be found in August and September on *Bryonia dioica* Jacq., the flies emerging in the following June; those of *Zonosema alternata* Fall. on *Rosa* spp., and *Phagocarpus permundus* (Harris) on *Crataegus monogyna* Jacq. and *Pyracantha* sp. may be found in September and October, and the flies emerge in the following May and June.

It is, however, in the species whose larvae live and pupate in the flowers of the Compositae where there is the greatest variation in habits. A number of these have two broods in a year, the larvae being found from June onwards; some have a partial emergence in August and September, with the remainder emerging in the following June and July. The larvae of *Tephritis bardanae* (Schr.) in flower-heads of *Arctium* spp., are to be found during July and August, the flies emerging in August and September of the same year; those of *Tephritis conjuncta* (Loew) in flowers of *Chrysanthemum leucanthemum* L. during June and July, the flies emerging in these months. *Tephritis hyoscyami* (L.) are in the heads of *Carduus crispus* L. from June to August, and the flies emerge in July and August; the larvae of *Tephritis winthemi* Mg. living in heads of the same plant, overwintering there and the flies do not emerge until May and June of the following year.

Some species whose larvae live in flower-heads enclose themselves in a cocoon of pappus hairs; this does not appear to protect them from the attacks of parasites but does prevent the pupae from falling out as the head ripens. The puparia are stuck together in the case of *Tephritis bardanae* (Schr.) presumably by a secretion from the larvae; those of *Tephritis cometa* (Loew) in heads of *Cirsium arvense* (L.) Scop. are attached to a few florets; with a few species the larvae gnaw a recess in the receptacle in which they pupate. Many species, however, make no provision for the pupae to be retained in the flower-head, and frequently as the head ripens these larvae or pupae may fall out on to the earth beneath the plant; this probably is the cause of the apparent scarcity of the larvae or pupae of some species known to occur freely in an area, especially if they are searched for rather late in the year.

I have observed with a few species a noticeable difference in the habits of their larvae, with *Oxyna parietina* the larvae normally pupate in the stems of *Artemisia vulgaris* in which they have been feeding. I have had on several occasions some leave the stems in the autumn to pupate in the soil, while the remainder stayed in the stems and pupated there in the normal manner. The flies from both series emerged in May and June of the following year. The larvae of *Trypeta tussilaginis* (F.) usually feed and pupate in the seeds of *Arctium* spp., and the flies emerge in June of the second year. I have had some larvae leave the seeds to pupate, while the rest remained in them; in this case, however, the flies emerged in September and October of the first year. The larvae of a few other species also feed in the seeds of Composite plants, those of *Urophora quadrifasciata* (Mg.) are to be found on *Centaurea nigra* L. and as these larvae grow the thin skin of the seeds expands, often to such an extent that the larvae may fall out. They then may pupate in the head or fall to the ground. I recently found that larvae of *Tephritis bardanae* started their life in the seeds, then left them to finish their growth among them in the flower-head where they finally pupated.

The larvae of *Spilographa zoë* (Mg.) are usually to be found in leaf-mines on *Chrysanthemum* and *Senecio* spp. in June and July, these they leave to pupate in the soil, the flies emerging from June to August; larvae have now been found in stems of *Senecio vulgaris* L. in September, where they pupated, the flies emerging in May of the following year. I know of no other instance of a leaf-mining larva becoming a stem feeder.

The flies of many of the flower feeding species emerging late in the first year must all hibernate, and if there are no flowers appearing early enough for them to ovipost in their chance of survival is poor. I know of at least one instance where this happened and the species involved disappeared from the area. There are a few species that have a succession of broods all of which must mature very quickly; the flies from the last brood emerge in August or September and undoubtedly hibernate. I have never found any overwintering larvae of these species.

A goodly proportion of the larvae of various species of Trypetids are confined to a single foodplant, some may be found on several species usually confined to one plant genus, but there are a few species where the range of food plants is quite wide. *Ensina sonchi* (L.) I have bred from nine different species of plants.

There are still a number of British Trypetids of which little or nothing is known of their biology, much intensive search for their larvae is required, while extensive breeding will no doubt bring to light many facts hitherto overlooked.

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CYNIPS LONGIVENTRIS HTG. (CYNIPIDAE HYM.)

By M. Niblett, F.R.E.S.

The galls of *Cynips longiventris* Htg., the agamic generation, are more or less globular and up to 10 mm. in diameter; they often have reddish bands particularly when exposed to sunlight, and are attached to the veins on the underside of the leaf. They are not uncommon but the numbers vary very considerably from year to year. I have found them on *Quercus robur* L. in Ashdown Forest, Sussex; Brockenhurst and Odiham, Hants.; and the following localities in Surrey: Arbrook Common, Ashtead Common, Banks Common, Banstead Downs, Banstead Wood, Bookham Common, Boxhill, Burgh Heath, Colley Hill, Coldharbour, Dunley Hill, Epsom Common, Epsom Downs, Effingham Common; Fetcham Downs, Holmwood Common, Leatherhead Common, Limpsfield Chart, Merrow Downs, Norbury Park, Ockham Common, Oxshott Heath, Park Downs, Ranmore Common, Reigate Heath, Riddlesdown, Wallington, Walton Heath, and Worms Heath.

On *Quercus petraea* (Matt.) Liebl. in Surrey at King's Wood, Selsdon Wood, and Worms Heath: also on a *robur* × *petraea* hybrid at Worms Heath.

The galls make their appearance in June and are mature in the autumn, the gall wasps emerging in November, December and January. I have had them emerge on three occasions at abnormal times, in March, April, and December of the second year, in the latter case three of the insects emerged in December of the first year, and two in the same month of the second, all from the same series of galls.

Comparatively few gall wasps have emerged from the numerous galls I have collected; the chief reason being due to their larvae being heavily attacked by parasites; numerous species of Chalcids have been recorded from these galls in the older Continental works, which have been copied, as is usual, by later writers. The Chalcid *Syntomaspis cyanea* Boh. destroys a very big percentage of the *longiventris* larvae; it emerges in May and June of the second year. An inquiline, *Synergus pallicornis* Htg. inhabits the galls but I have bred very few from the numerous galls I have had. Its Chalcid parasite *Eucytoma rosae* Nees. has also appeared rarely, these emerging in April and May of the second year. The Synergi emerged in May and June. I have also had a few of a Pteromalid sp. emerge in May.

In 1946 I collected 133 galls of *longiventris* from *Q. robur* in six different localities; these yielded 17 specimens of the gall wasp, seven of the inquiline Synergi, and sixty-one Chalcids, only three of which were Eurytomids. I have searched for these galls over the last twenty-five years and have kept a considerable number to breed from. In these I have found the proportion of the insects which have emerged much the same as those quoted above.

The great scarcity of inquilines and of their parasite, *E. rosae*, is a curious feature, as the galls of the other agamic species of the genus are usually infested by one or both. The almost entire absence of *longiventris* galls on *Q. petraea* is also peculiar; in a number of mixed woods that I have visited frequently, these galls were confined almost entirely to *Q. robur*; in one wood where the hybrid oak grew, this was found to have a fair number of these galls on it as also did *Q. robur*, but none could be found on *Q. petraea*. Whether this peculiarity applies to other parts of Britain I am unable to say.

When Adler was carrying out his research on the alternating generations of Cynipidae, he obtained some galls of *longiventris* by accidentally sleeving in 1876 some of its then unknown alternate with the insects of another species. This proved that *similis* Adler, now *substituta* Kinsey, was the alternate sexual generation of *longiventris*. So far as I know this experiment had not been repeated until in May 1947 I sleeved a number of *substituta* on a branch of *Q. robur*. The result obtained from this sleeving was the appearance of sixty-three *longiventris* galls. From these I had emerge three gall wasps and numerous Chalcids. The majority of the *longiventris* I have bred have emerged when the temperature has been 2°C., but on one occasion I had an emergence when the temperature had fallen to −2·5°C. The insect became quite lethargic after it had left the gall.

Cynips longiventris Htg. form *substituta* Kinsey. The galls of *substituta*, the sexual generation, are formed of the adventitious buds frequently found on the trunks of oak. They are about 2 mm. long, and greyish-green in colour. They are to be found in April and May, the gall wasps emerging in the same months.

A small number of Synergi and Chalcids, at present unidentified, have emerged in June from the galls I have had. These galls should be found in the same localities as the *longiventris* galls. I have found them in several of the localities previously mentioned.

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LARVAE OF THE BRITISH LEPIDOPTERA NOT FIGURED BY BUCKLER.

PART II.

Compiled and illustrated by G. HAGGETT.

Plusia chryson Esper. Scarce Burnished Brass.

The larva of *P. chryson* is described under its old name of *orichalcea* by Warren in Vol. VI of Buckler's work but no figures are given.

It is another moth now known to be widely distributed over southern and eastern England extending to Cardiganshire in South Wales, but in the last century it was thought to be restricted to the fen areas of the eastern counties; its principal haunts were long believed to be the fens at Chippenham and Wicken but today it is better known from the Test valley in Hampshire.

Larvae can be found after hibernation sitting on the stalks of the foodplant and usually not far from newly ravaged foliage, but A. J. Wightman has found it much easier to seek in the autumn when small and then winter the species on potted plants.

Description of full grown larva. In length measures 32 mm. Is of the usual *Plusia* shape and build with large fleshy anal claspers and with prolegs only on the fifth and sixth abdominal segments.

Colour a bright juicy yellow green, with darker shading laterally and towards the head.

The dorsal line is represented by a series of darker dashes through which the pulsating dorsal vessel can be seen; the dashes begin as a narrow broken series on the second thoracic segment and become much broader from the first abdominal to continue regularly to the seventh and eighth rings where they are confluent, and then they become greatly reduced to the last ring: each dark dash is obliterated at the yellow intersegmental fold, and is much constricted at the posterior half of its segment. The series is bordered throughout by a finely crinkled white line.

The subdorsal lines begin boldly immediately behind the head, diverging at the metathorax and first abdominal ring, and continue as fine wavy yellowish tinged broken lines that sweep towards the dorsal line at the posterior half of each abdominal ring, forming a series of weakly expressed \/ markings: at the fifth and sixth abdominal rings they are straighter and better defined. Each half of the \/ just crosses the intersegmental fold on the segment that follows.

Spiracular line white, faintly marked on the prothorax, becoming strong and continuous but very sinuous on the anal claspers.

Spiracles small, white, finely ringed in black, oval, the last pair much larger than the rest: all are placed at the lower edge of the spiracular line.

True legs pale greenish tipped with pinkish. Prolegs dark green and well equipped with strong crochets.

Head plain green, shining and set with numerous strong fine hairs, mouth parts not darker.

Warts sugary white, large and conspicuous, each set with a strong pale bristle.

Some larvae may have the true legs coloured black and bear a short black streak on the sides of the head about the ocelli.

The larva of *P. chryson* clearly belongs to the *chrysitis* group of *Plusia* for whereas it lacks the bluish bloom of *P. chrysitis* L. itself, it has the same warty appearance, and a larger rounded head which at once separates it from the *gamma* forms.

(A detailed description of the chaetotaxy of *P. chryson* is given from Indian larvae in *Proc. R. ent. Soc. Lond.*, **20**: 16, Pl. 1.)

Figures—Pl. 7, figs. 3, a, b and c. Full grown larvae reared on Hemp Agrimony (*Eupatorium cannabinum* L.). Wherwell, Hants. 1.vi.56. From A. J. Wightman.

Plusia ni Hübner. Ni moth.

In recent years broods have been reared successfully in Britain from migrant females and the larvae has in consequence become much better known. There is still no positive record of the species breeding wild in this country but it was assumed to have bred at Ummera, Co. Cork, in 1934, and possibly again along the south west coast of England in 1952 and 1953. F. H. Lees, however, suggests the outdoor temperature of Britain may be generally too low to allow the necessary quick growth of the larva.

The moth has been taken in most counties of the British Isles at one time or another but it has been seen more often in Southern England in August. In 1952 several appeared with other migrant moths in March.

P. B. M. Allan (*Larval Foodplants*, 1949) says "apparently widely polyphagous: larvae have been reared on Cabbage, Turnip, Nettle, Lettuce, Celery, Tomato, Black Nightshade (*Solanum nigrum* L.) and other herbaceous plants".

Description of full grown larva. Length to 35 mm. Is of the same size and shape as *P. gamma* L. but is rather more slender when young, and at full growth the head capsule of *P. ni* is rather smaller.

General colour a pale yellow green, bluish along the dorsum with irregular whitish lines; the darker green dorsal line is edged faintly in white and is followed immediately below by a paler green stripe, and then bordered broadly with bluish white above a fine dark wavy line and another paler, broken line, and finally a series of whitish dots. Immediately above the spiracles there is a heavy black wart, and all other dorsal and lateral warts including the trapezoidals are sugary white and very small, each emitting a short fine hair: below the spiracles the warts are tiny and black.

Above the line of black warts the larva has a bluish sheen, below the ground colour is yellow green. Intersegmental folds yellowish, even whitish.

Spiracles large, oval, white, finely ringed in black.

Prolegs and anal claspers green, tipped with brown. True legs dark brown and blackish.

Head pale olive ochreous, shining, devoid of markings except darker ocelli and tiny warts.

The dorsal line and dark band containing the black warts are the only conspicuous features of this ill marked larva. The green of the body varies in hue as the segments contort and depends also on the amount of light received.

The few live larvae I have seen of this species accord with the above description and I have no knowledge of variation and cannot say if this species develops the black head streaks as do many larvae of *Plusia*.

(A detailed description of the chaetotaxy of *P. ni* is given from Indian larvae in *Proc. R. ent. Soc. Lond.*, **20**: 20, Pl. 3.)

Figures—Plate 6, fig. 2; a, b and c. All of last instar larvae reared on Cabbage and Lettuce from migrant female taken at Maidencombe, Devon, by F. H. Lees. Figured 14.ix.53.

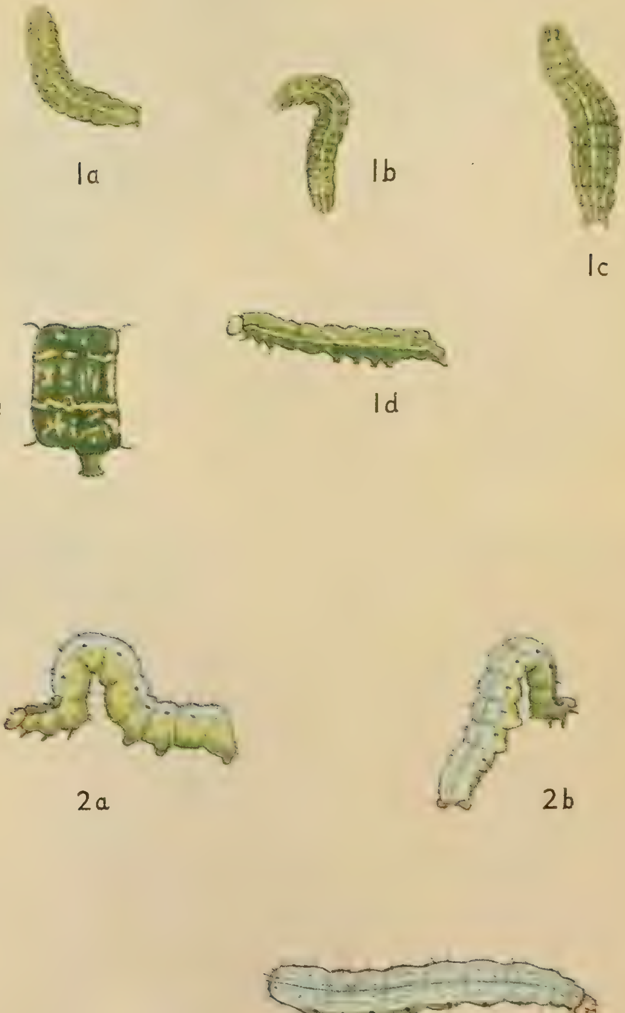
Polychrisia moneta F. Golden Plusia.

Following its discovery in Britain in 1890 the Golden Plusia was quickly recorded from southern and midland counties of England and Wales, and today it has a distribution that reaches to northern Scotland and the Isle of Man; F. W. Smith (1946, *Entom.*, **79**: 116) writes "*P. moneta* occurs over a wide area of Scotland including the north". Some years earlier Prof. J. W. Heslop Harrison (1938, *Entom.*, **71**:178) listed a number of Scottish counties in which *P. moneta* was found. The first Irish record is from Dublin in 1939, and by 1953-4 it was regarded as established there but still unknown elsewhere in Ireland.

The species remains a "domestic" insect, being an inhabitant of flower gardens and in particular of the herbaceous border; but T. Bainbrigge Fletcher fed the larva in captivity on *Artemisia absinthium* L.

There has been considerable discussion and speculation on the way in which *P. moneta* passes the winter, which Allan summarised in *Ent. Rec.*, **67**:23-27. In Belgium the tiny larvae appear to hibernate in sheltered places at the root crown or between the small leaves of new shoots.

Young larvae feed at the flower shoots of Monkshood (*Aconitum anglicum* Stapf.) and *Delphinium* and during the early instars as many as five or six larvae may occupy the same tent. Later they live a separate existence within a larger retreat and finally live and rest freely on the plant. The pupa is enclosed in a tightly spun cocoon of yellow or white silk. The moth flies in June and July and often again in August.



Figs. 1a, b, c, d. *Cosmia pyralina* Schiff., last instar.
Fig. 1e. *Cosmia pyralina* Schiff., 5th abdominal segment, enlarged.
Figs. 2a, b, c. *Plusia ni* Hb., last instar.

In its younger instars the larva is sooty green, becoming dark glassy green and thickly studded with large black warts, and later it shows a white lateral line: head black or heavily marked with black, all legs and plates shining black, warts with short black hairs.

Description of full grown larva. Length to 40 mm. It is an obese, fleshy caterpillar, the skin soft and velvety, the segments much swollen and humped. The body tapers from the smaller, contracted, thoracic segments to its greatest girth at the fifth and sixth abdominal rings and continues broad and plump at the seventh and eighth whence it tapers abruptly to the small anal claspers, giving the humped profile typical of *Plusia*. Prolegs present only on the fifth and sixth abdominal rings. True legs fleshy pale green. Head pale green to yellowish, smooth and shining, flattened in front like *Plusia*.

The general colour is a soft pale emerald green inclined more to yellow green along the back, and with a bluish white sheen on the last four segments. Intersegmental divisions yellow. The most conspicuous marking is the clear white spiracular line which begins strongly on the first abdominal ring but is represented only by broken streaks on the thoracic; it runs continuously to the anal claspers, becoming thicker on the later abdominal segments. Dorsal line fine dark blue-green, running from the first thoracic segment to the ninth abdominal. Subdorsals white and much wrinkled on the thorax, dark and ill defined on all remaining segments.

Prolegs fleshy, green, grey-pink at the extremities. Spiracles white, oval, thinly ringed in black. Tiny white warts emit a soft, short and very fine black hair.

In some examples there is an amount of white mottling along the back and sides.

Figures—Pl. 7, fig. 4a, young larva; b and c, last instar figured 7.v.49, 18.iv.52, 27.iv.52 on *Aconitum*. Arundel, Sussex.

Cosmia pyralina Schiff. Lunar-spotted Pinion.

Larvae of the four British species of *Cosmia* are apt to be confused because they all occur on elm foliage from early May to early June. *C. trapezina* L. is by far the commonest and it is present on many other trees; *C. affinis* L. is that most freely beaten from elm, on which it exclusively feeds; *C. pyralina* Schiff. has been found on numerous trees but is most frequently obtained from elm; *C. diffinis* L. is the least common of all although it has years of comparative plenty in some localities, it is another species restricted to elm.

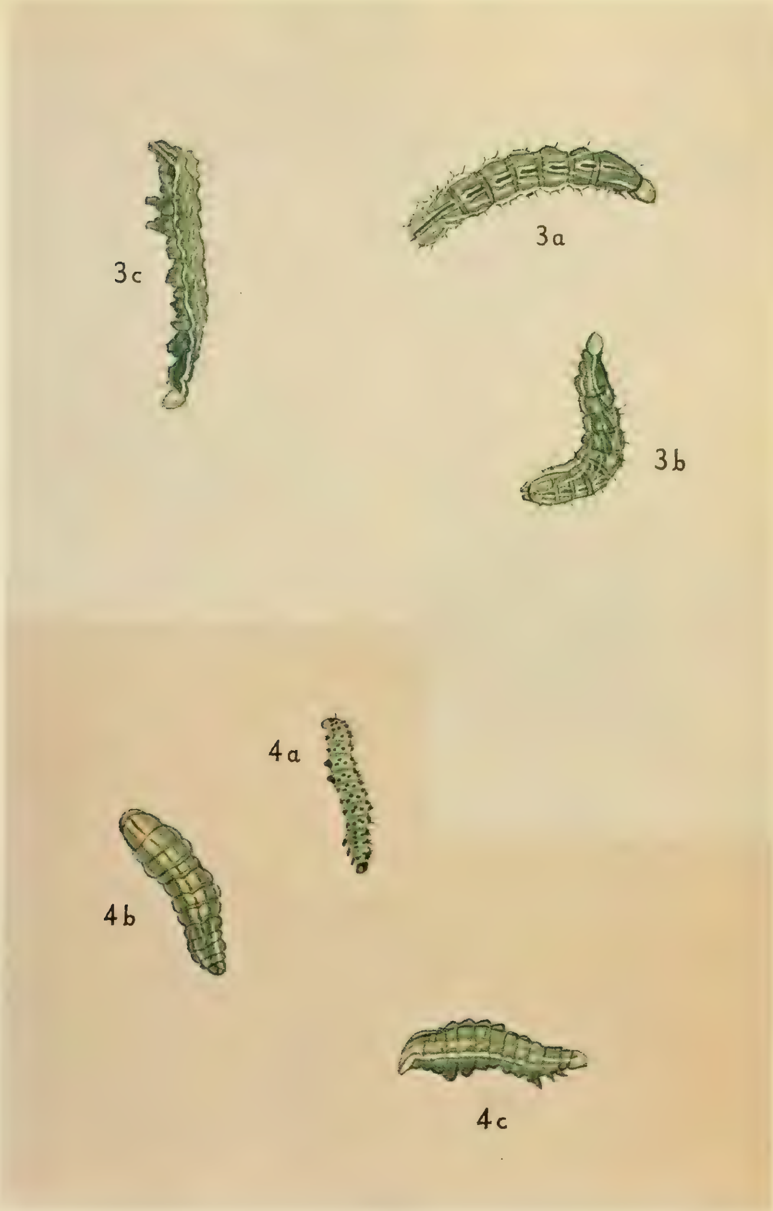
The descriptions of all four species given by South (1908, *Moths of the British Isles*, **2**: 2-5) and again by Stokoe (1948, *Caterpillars of British Moths*, **1**: 319-322) are not sufficient to separate the larvae and the figures are by no means clear, although Stokoe (*loc. cit.*, pl. 77, fig. 1) shows a fair impression of *affinis*. Buckler's figures (vol. 5, pl. 86) of *trapezina* (fig. 3) illustrate only a dark green form and this not at all well; his drawings of full grown *affinis* (fig. 5) are quite inaccurate, fig. 5c showing the brown head which at this stage is peculiar to *diffinis*, while fig. 5b appears much more like *pyralina*; but fig. 5a is very characteristic of the young *affinis*. Buckler's descriptions (**5**: 85-87) of mature *diffinis* and *affinis* are both very good. Wilson (1880, *Larvae of the British Lepidoptera and their Foodplants*) gives a long general description of *pyralina* omitting the salient points of distinction and his figure is exceedingly poor.

The last instar larva of *C. affinis* has a very smooth skin that is more inclined to pale blue than to green along the dorsum and its warts are quite inconspicuous; it is a broadly flattened larva with the segments sharply distinct; it rests in a most characteristic aggressive pose which Wightman has so aptly named the "alligator attitude". In its early instars the young *affinis* larva has a totally black head, black prothoracic plate and true legs and a small black plate on each proleg. Mature *C. diffinis* is readily distinguished by the dark brown, reddish, or quite black head; the dorsal warts are tiny and black. It reaches full growth a fortnight or so later than other larvae of the genus. *C. trapezina* is best known by the conspicuous black warts set each on a white base and by the broad pale spiracular band that persists in all colour forms.

The bright green larva of *C. pyralina* is well separated from its fellows by the heavy cream coloured dorsal warts and by the black freckling of the spiracular line on the first two segments alone, a character which in mature *affinis* is always subordinate to black markings along the abdomen. Indeed the larva of *pyralina* is superficially more easily confused with *Orthosia stabilis* Schiff., *O. incerta* Hufn. and *Dryobotodes protea* Schiff. than with members of the genus *Cosmia*.

Both *trapezina* and *affinis* attack and devour other caterpillars but they are not proven cannibals either of their own species or of each other. *C. pyralina* is not known to share the habit. P. B. M. Allan (1949, *Larval Foodplants*) lists the following trees on which larvae of *pyralina* have been found: oak, common elm, blackthorn, bullace, apple, lime, hawthorn. Stokoe includes pear. Concerning the elm feeders Mr. A. J. Wightman has found as a pretty constant guide that *pyralina* feeds on smaller scrubby trees, *affinis* on the branches of large trees, and *diffinis* concealed amongst the pendulous side (epicormic) shoots of the trunks of well grown trees; *trapezina* occurs in all these situations.

Description of last instar larva of C. pyralina. In length measures to 30 mm.; in shape rather dumpy, even obese, tapering but slightly at each end, it is markedly cylindrical in contrast to the flattened *trapezina* and *affinis*. Colour yellow grassy green, exactly the hue of *Orthosia stabilis* Schiff. and *Bena fagana* F. (*prasinana* auct nec L.), inclining to pale bluish in the same manner as those species. Dorsal line cream-tinted white, prominent and thick; subdorsals pale yellow, much thinner than the dorsal and much broken on each segment.



Figs. 3a, b, c. *Plusia chryson* Esp., full grown.
Fig. 4a. *Polychrisia moneta* F., young larva.
Figs. 4b, c. *Polychrisia moneta* F., last instar.

Spiracular line thin, continuous, sinuous, wrinkled, cream-yellow, passing immediately below the spiracles and continued to the anal claspers as a thick yellow stripe; this line is edged above by dense black freckling on the first and second thoracic segments to form a short black streak broken only by the prothoracic spiracle. Head shining, pale blue green, with short black hairs sparsely in front. True legs and claspers of the same colour as the body. Spiracles oval, white, thickly ringed in black. The body is blue-green beneath. There are numerous transverse yellow blotches and irroration along the sides and the usual *Cosmia* warts are clear yellow, showing no black. Intersegmental folds cream.

Figures—Plate 6, fig. 1; a, b, c and d, last instar; e, fifth abdominal segment enlarged. On English elm, Arundel, Sussex, 19 and 22.v.52.

CORRECTION TO 1955 TRANSACTIONS.

Page 159. Eupithecia millefoliata Rössl.

Mr. Austin Richardson has been good enough to point out that whereas the specimen taken by him at Sandwich in 1939 was in fact determined by Prout to be no more than ab. *oxydata* Treits. of *E. subfulvata* Haw., Mr. Richardson was never satisfied with this and later submitted the insect to Mr. D. S. Fletcher who recognised it as *E. millefoliata*. This happened before the Sandwich larvae had been reared through by Mr. Wakely, and Mr. Richardson's specimen thus remains the first recognised in Britain. The facts are given in the following references: 1952 *Ent. Gaz.*, **3**:104; 1949 *Entom.*, **82**:72, 139.

UNISEXUAL DIMORPHISM IN A MIRID (HEMIPTERA), BLEPHARIDOPTERUS ANGULATUS (FALLÉN).

By Dennis Leston
(*now at Imperial College, London, S.W.7*)

The polytypic species concept has been applied in but few instances to heteropters. The tendency amongst some systematists has been to erect more and more "species" regardless of problems of geographical distribution, intra-specific variation or seasonal phases. Nowhere has this undesirable type of taxonomy been more evident than in recent studies of the European capsid-bugs (unless it be in current work on the Ethiopian assassin-bugs). In a limited number of cases the minute differences between the forms have resided in the aedeagus or harpagones and could perhaps be considered as bars to successful interspecific matings; such is the case in *Lygus* Hahn (=*Exolygus* auctt.) and *Lygocoris* Reuter (=*Neolygus* auctt.), where the forms concerned are, in addition, sympatric. However, the recently erected splinter species in, for example, *Deraeocoris* Kirsch., are largely allopatric and distinctions which have been suggested to have specific significance are probably little more than stages in trans-European clines.

The present investigation is centred upon a relatively simple complex, that of a monotypic genus to which one further "species" has been added in recent years.

The European Blepharidopterus.

A male *Blepharidopterus* was collected at Box Hill, Surrey, on 12th October, 1954; on length of antennae and hind tibiae it was readily referable to *B. brevicornis* (Wagner) 1947. The bug occurred on *Alnus* along with *B. angulatus* (Fallén) 1807. However, preparations of the genitalia revealed no differences between the structure of the aedeagus and harpagones of the *brevicornis* male on the one hand and British *angulatus* males on the other. This was surprising, for Wagner (1947, 1952) has lain stress on a major difference in harpagone structure between the two species, differences which both Netherlands (Gravestein, 1951) and Swedish (Ossiannilsson, 1953) authorities must, presumably, have accepted when adding *B. brevicornis* to the faunas of their respective countries.

B. angulatus, the Black-kneed capsid, is an important predator in orchards upon the Fruit-tree red spidermite, *Metatetranychus ulmi* (Koch) and its biology is known in some detail (Collyer, 1952; Leston, 1957a, b; Southwood and Leston, in press). Outside orchards it is said to occur throughout western Europe on *Alnus, Betula* and *Corylus* (Wagner, 1952). *B. brevicornis* is said to occur on *Ulmus* and *Alnus* in Sweden, the Netherlands, North Germany, Bavaria and Poland

(Wagner, 1952; Gravestein, 1951; Ossiannilsson, 1953; Smreczynski, 1954). *Ulmus*, it may be noted, is commonly the host-tree of *B. angulatus* in Britain.

In view of the undoubted presence of marked structural differences —in antennal and tibial lengths—between individuals of the *brevicornis-angulatus* complex a biometrical examination has been undertaken in order to elucidate the status of the included forms. Wagner (1947) has claimed that there are two distinct species, recognisable on antennal and tibial characters in both sexes and on genitalic characters in males.

Material and methods.

Some 122 males and 218 females have been examined (where an appendage was missing only a part examination could be made). They came from the areas listed in Table 1. Preliminary analysis of the measurements showed that there was no obvious geographical variation in the structures measured, at the level of the present study, save perhaps for the Moravian sample. The samples included material from various host trees but again no associated size differences were detected. The various measurements have therefore been grouped together

Table 1.

GEOGRAPHICAL DISTRIBUTION OF MATERIAL EXAMINED.

Country	*Males*	*Females*
ENGLAND		
Westmorland	18	—
Bucks, Berks, Oxon	3	7
Staffs, Worcs	4	4
Kent, Sussex	4	39
Hants, Surrey	20	49
Somerset	—	1
Essex, Sflk, Cambs	7	9
Middx, Herts	10	10
	— 66	— 119
CHANNEL IS.: Jersey	8	3
FRANCE	2	4
NETHERLANDS	7	14
GERMANY		
North	19	36
South-west	3	5
	— 22	— 41
SWEDEN	10	30
CZECHOSLOVAKIA: Moravia	7	7
TOTAL	122	218

irrespective of locality, host plant or date (there is a single annual generation probably throughout the range from whence the samples came).

The following measurements were made using a micrometer eye-piece:

1st antennal segments, mean length	unit = $22{\cdot}5\mu$	a_1
2nd antennal segments, mean length	unit = $22{\cdot}5\mu$	a_2
pronotum, maximum width	unit = $22{\cdot}5\mu$	p
hind tibiae, mean length	unit = $36{\cdot}4\mu$	t

No difficulty was experienced in measuring carded specimens save in those cases where the insect had been over-relaxed before setting. Pinned specimens, or those mounted on card or celluloid points, usually required disentanglement or even remounting. It cannot be stressed too often that the old British method of carding is by far the best and most permanent method for the preservation of capsid-bugs.

Genitalia were examined after maceration in caustic potash and combined neutralisation-staining in acid fuchsin in acetic acid (Leston, 1953). Arithmetical treatment was as far as possible eliminated by the use of graphical methods, including probability paper (Harding, 1949). All calculations were made with the aid of a slide-rule and a pocket adding machine. The original data are on ten foolscap sheets deposited with the Royal Entomological Society of London.

Measurements.

In order to envisage the degree of heterogony and to eliminate it from further consideration scatter diagrams were constructed to show variation of antennal length (using the total length of 1st and 2nd segments, $a_1 + a_2$) with variation of pronotal width (p) in males (fig. 1) (compare Johnson, 1939, on *Cimex*). From fig. 1 it is seen that two populations, in the statistical sense, are present. One population, that which includes the published measurements of Wagner's lectotype male of *angulatus* and is referred to as the *angulatus* population, is more abundant than the other. In the *brevicornis* population, that is, the population which includes the published measurements of Wagner's holotype male of *B. brevicornis*, increase of $a_1 + a_2$ with p is less than in the *angulatus* population. However, the heterogonic factor has not been calculated as its meaning lies outside the scope of the present inquiry.

A line xy has been drawn on fig. 1 to divide the two populations arbitrarily. Three bugs had measurements which did not allow them to be placed unequivocally in either population but tibial length is so short in one of these (77 units) that it was regarded as a member of the *brevicornis* population in anticipation of the conclusions, whilst the other two were regarded as falling within the limits of the *angulatus* population.

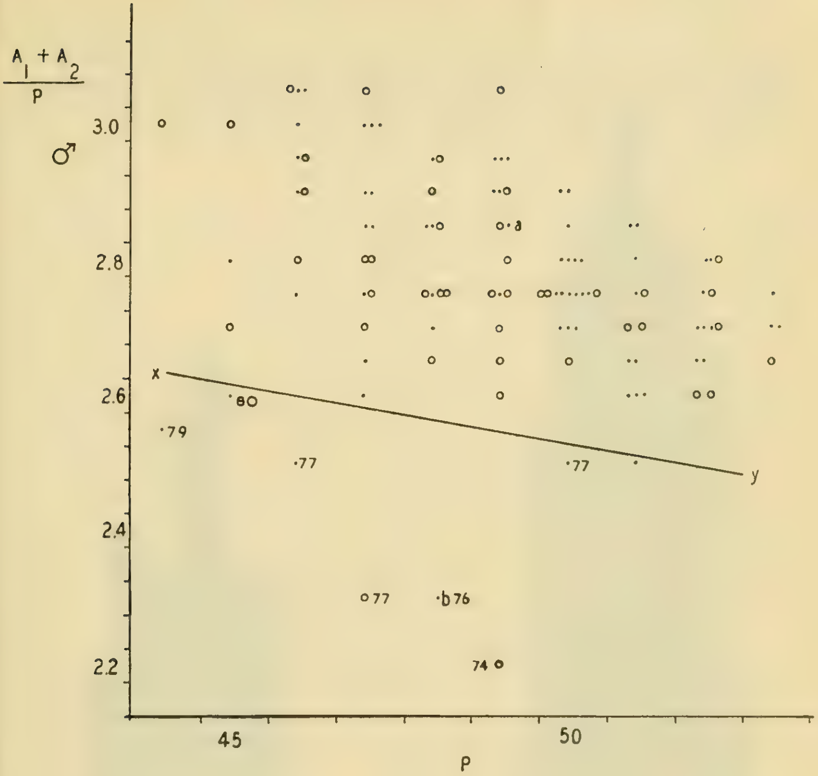


Fig. 1 Males : Width of pronotum (p) plotted against ratio of lengths of antennal segments to pronotal width $\left(\frac{a_1+a_2}{p}\right)$ Open circles, south of England specimens; dots, other specimens. a, b, published measurements of Wagner's *angulatus* and *brevicornis* respectively. 74, 76 . . . 80, tibial length of specimens assigned to the *brevicornis* population. x, y, arbitrary division into two populations.

By plotting $\frac{a_1 + a_2}{p}$ against t (fig. 2), based on males, the division into two populations can be made at sight, the three doubtful specimens of fig. 1 falling into their assumed groups quite readily. An absolute division can be made at tibial length 81 units: those below are *brevicornis*, those above *angulatus*.

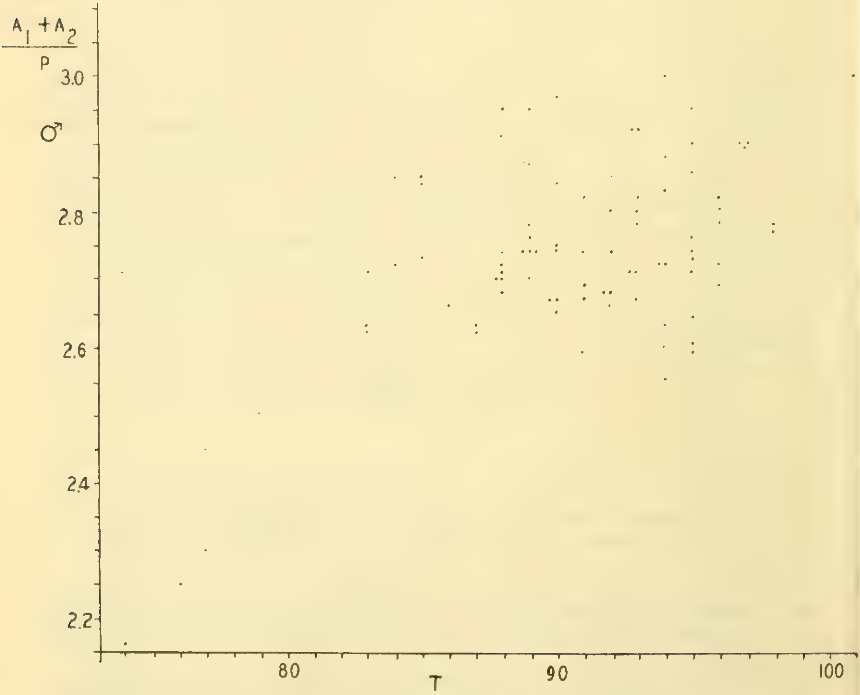


Fig. 2 Males: Length of hind tibiae (t) against $\left(\frac{a_1+a_2}{p}\right)$ all localities. Division into two populations may be made at t=81.

A *prima facie* case for the existence of two populations having been established, it is necessary now to eliminate the effect of absolute size, as exhibited in the pronotal width, and also to extend the investigation to females.

Fig. 3 gives histograms of pronotum width (p) frequencies for both sexes; by inspection it may perhaps be assumed that we are dealing with a normal curve of distribution in each sex. The statistics of pronotum width are given in Table 2.

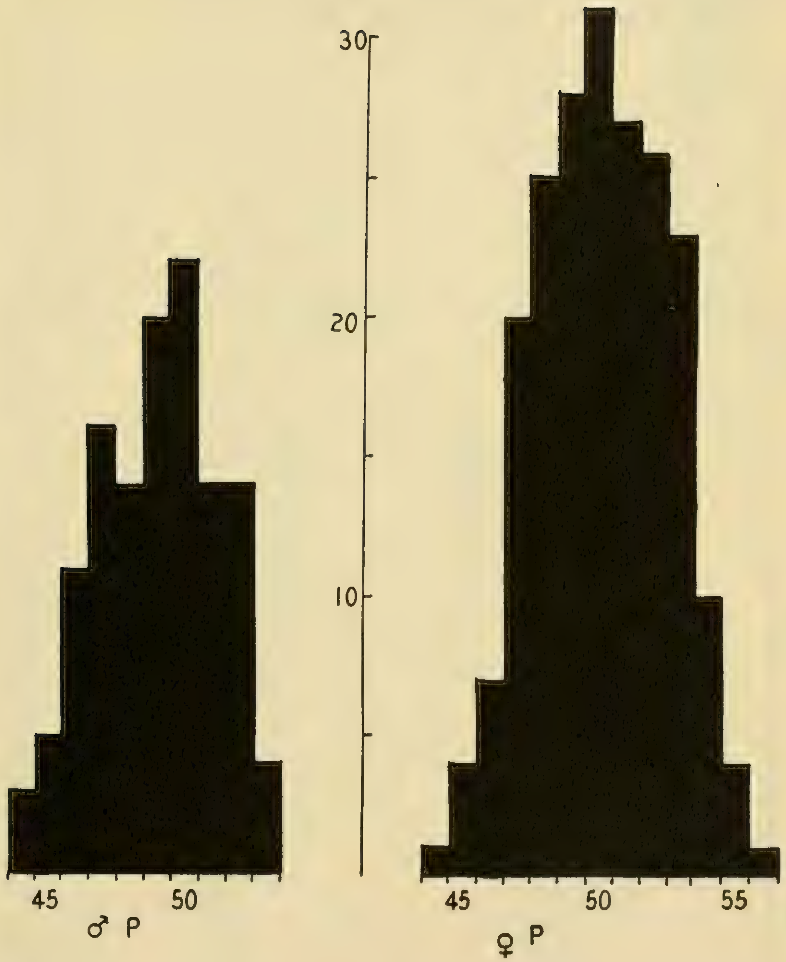


Fig. 3 Frequency distribution of pronotal width (*p*).

The variation of t with $a_1 + a_2$ was next investigated. Figs. 4 and 5 show $a_1 + a_2$ plotted against t for each sex. The correlation coefficient (r) for females was found by calculation to be 0·80. The laborious calculation of r for males was not made as its value can be seen by inspection to lie close to that calculated for females.

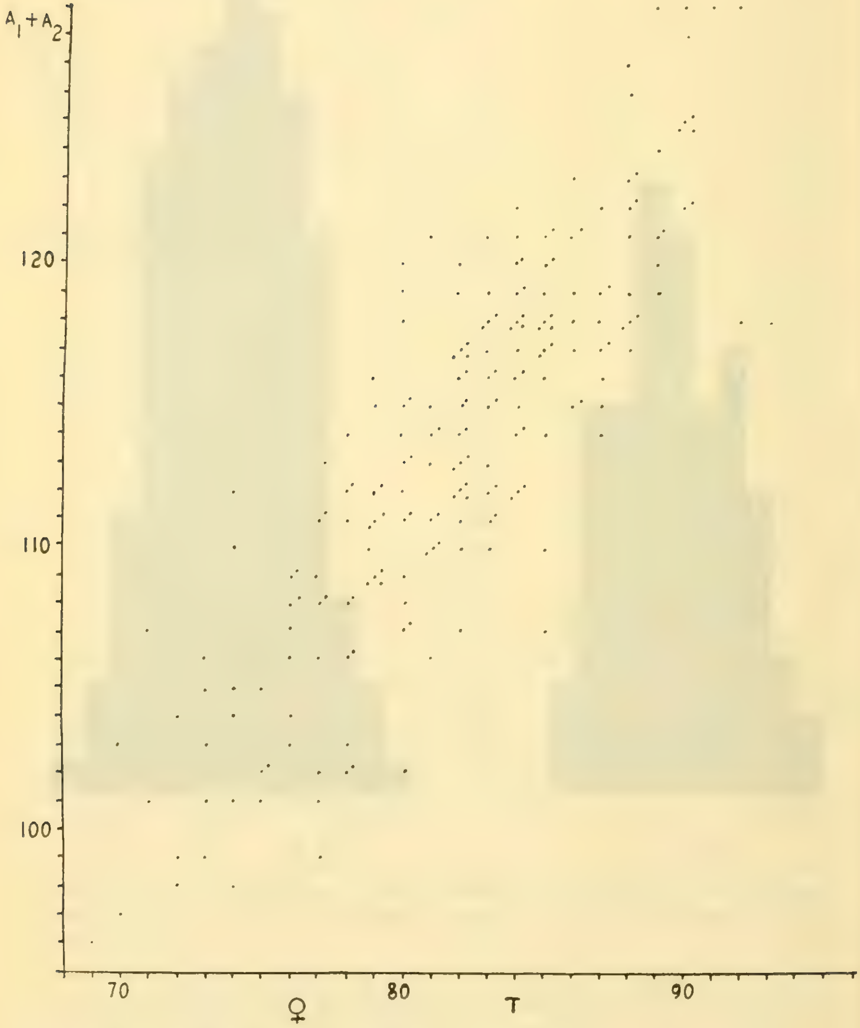


Fig. 4 Females: Scatter diagram of a_1+a_2 against t. r=0·80.

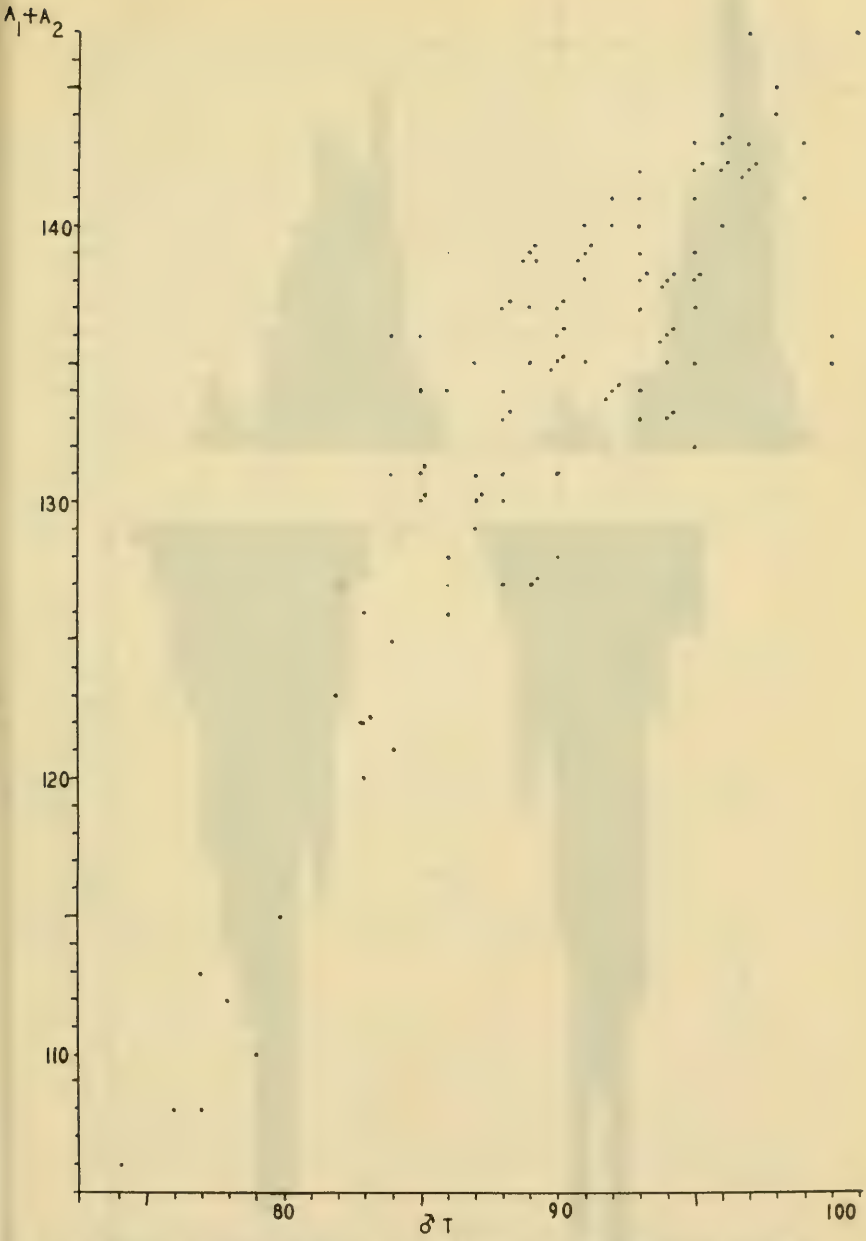


Fig. 5 Males: Scatter diagram of a_1+a_2 against t. Note similarity to fig. 4 save for the brevicornis "tail".

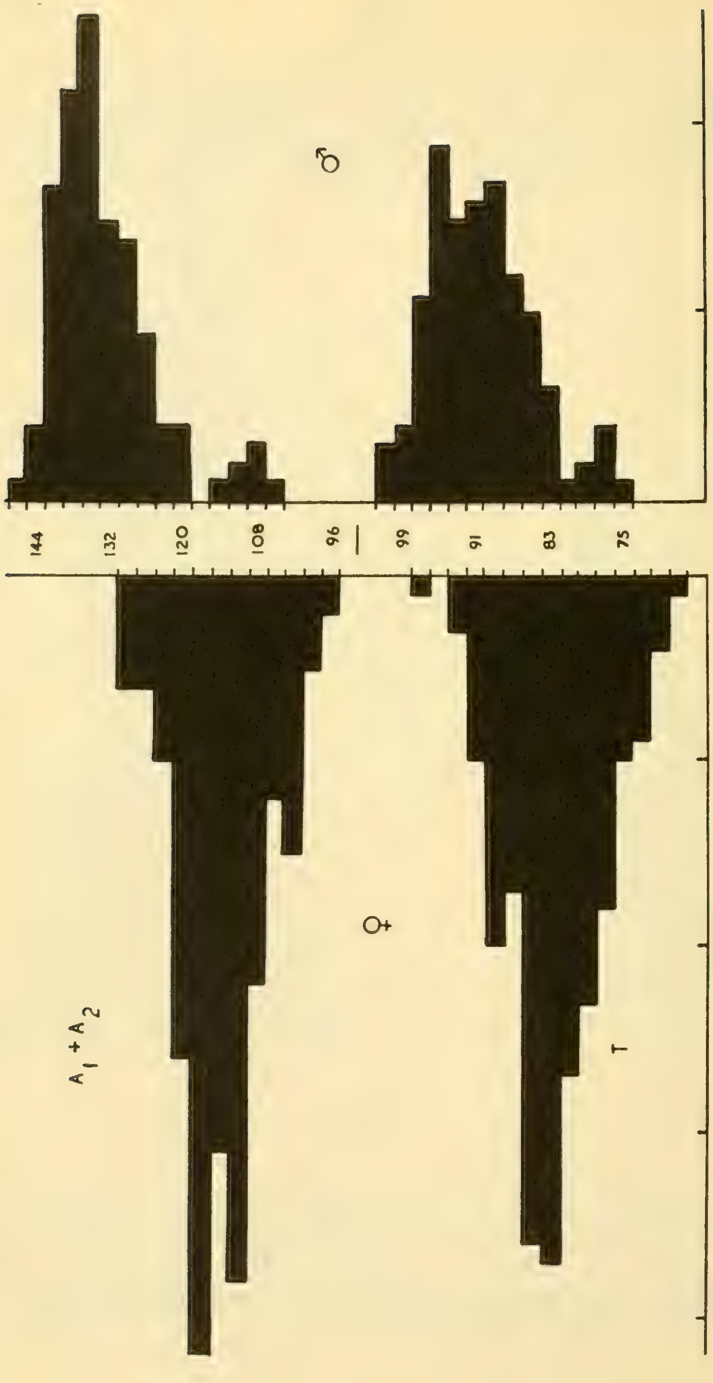


Fig. 6 Frequency distributions of $a_1 + a_2$ and *t*. Lengths (in units) in centre.

It has now been established that pronotal width is more or less normally distributed in each sex, that antennal length and tibial length vary together in both sexes and that antennal lengths (and consequently tibial lengths) divide the males roughly into two populations, unequal in numbers of individuals. An extension of the analysis of tibial and antennal lengths to females was next carried out. Histograms of frequency distribution of these measurements in both sexes were constructed (fig. 6). These support the suggestion of bimodality in males already contemplated above but *no such bimodality is evident in females.* The same data, when plotted on arithmetical probability paper, brought this out clearly (figs. 7 and 8). Females were therefore treated as being members of a homogeneous, normal curve, population whilst males were treated as being dimorphic and divided into two populations as suggested by figs 1 and 2. The calculated statistical data for t and $a_1 + a_2$ are given in Table 2.

The division of males into two groups on antennal and tibial length was carried out arbitrarily: it remains to show that the procedure was legitimate.

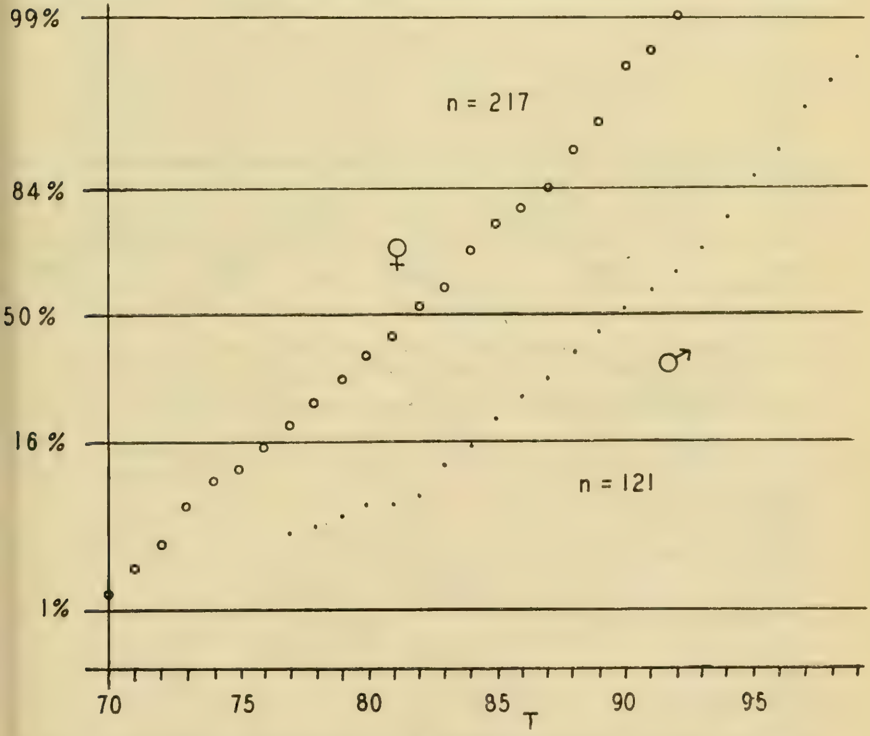


Fig. 7 Arithmetical probability plot of frequency distribution of t. All male specimens treated together. Note polymodality of males. n, sample size. 16% and 84% levels approximate to one Standard Deviation.

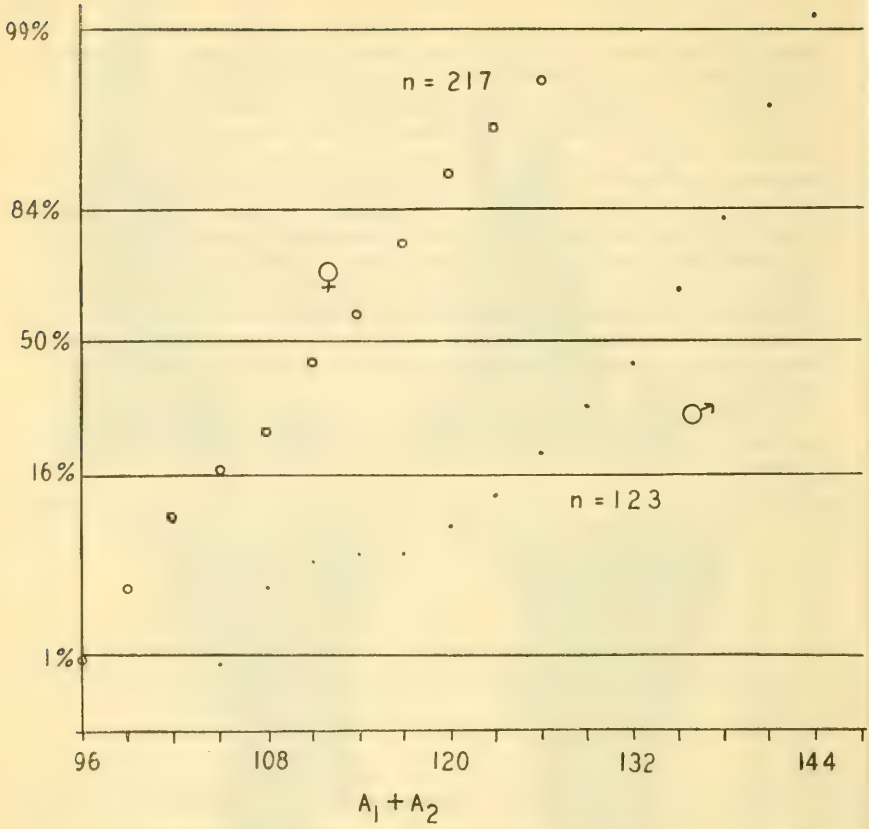


Fig. 8 Arithmetical probability plot of frequency distribution of a_1+a_2. All male specimens treated together. Note similarity to fig. 7: i.e., male polymodality.

Table 2.

MEASUREMENTS OF *Blepharidopterus angulatus* IN MILLIMETRES.

	Males		*Females*
Pronotum width (p)			
Sample size (n)	123		207
Mean (m)	$1{\cdot}13 \pm 0{\cdot}01$		$1{\cdot}10 \pm 0{\cdot}00$
Standard Deviation (SD)	0·05		0·05
	brevicornis	angulatus	
Antennal length (a_1+a_2)			
n	8	115	215
m	$2{\cdot}52 \pm 0{\cdot}05$	$3{\cdot}04 \pm 0{\cdot}01$	$2{\cdot}56 \pm 0{\cdot}01$
SD	0·13	0·13	0·16
Tibial length (t)			
n	8	113	215
m	$2{\cdot}81 \pm 0{\cdot}02$	$3{\cdot}31 \pm 0{\cdot}02$	$2{\cdot}98 \pm 0{\cdot}01$
SD	0·07	0·16	0·19

From the following figures it can be seen that a member of either statistical population can be sited with significant accuracy:

	brevicornis mean + 2 (S.D.)	*angulatus* mean − 2 (S.D.)
tibia (t)	80·9 units	81·9 units
antennae ($a_1 + a_2$) ...	123·4 units	123·7 units

For tibia (t) there is no overlap at the Standard Deviation ×2 level of the two populations: the probability that a male of either type can be correctly assigned to one population or the other is therefore significant ($P>0{\cdot}977$). At Standard Deviation ×3 level there is some overlap but, as far as the present investigation goes, overlap by tibial length is offset by non-overlap of antennal length for any one individual. Using the "t" test it is found that, for antennal length, the differences between the two populations are highly significant: that the present data are consistent with a single normally distributed population has $P<0{\cdot}001$.

On the biometrical data presented it is concluded that females are members of a single homogeneous statistical population, whilst males show a dichotomy into a *brevicornis* population and an *angulatus* population, the *brevicornis* population being the smaller of the two.

That the apparent presence of two male populations is due to bimodality rather than skewness in the data of figs. 6 has been assumed; the bimodality may be the effect of extreme skewness but even if so the biological deductions from the data seem in no wise invalidated.

The measurements obtained are converted into millimetres in Table 2. What so far have been regarded as statistical populations are for the remainder of this study considered as biological forms.

Morphological and biological data.

The claspers of a male, referable to f. *angulatus* and taken off *Tilia* in London, are figured (fig. 9). Examination of claspers from

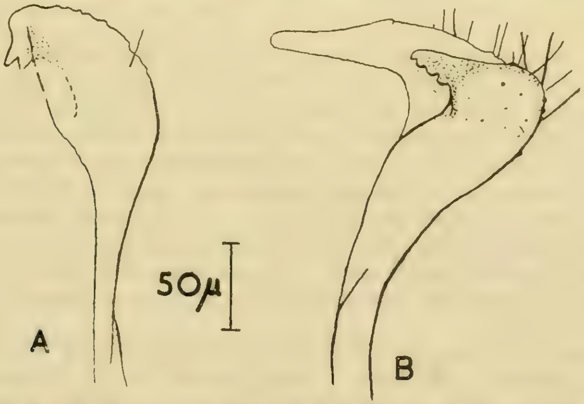


Fig. 9 Male genital claspers (harpagones) of *B. angulatus* f. *angulatus* off *Tilia*, London, N.W.8. A, right; B, left.

specimens referable to f. *brevicornis* and from other examples of f. *angulatus* reveal no significant difference in the two forms; the right harpagone shows usually two but sometimes three teeth at the apex. The sharply defined differences figured by Wagner (1947, fig. 2; 1952, fig. 83) are due to artifacts. Wagner's figure of the left harpagone of f. *angulatus*, showing absence of the saw-toothed process, is of *a mutilated and fractured organ*. Similarly, differences in the aedeagus depicted by Wagner are a reflection of his technique; they represent different stages of expansion and/or squashing.

The English material examined comes principally from *Ulmus*, *Alnus*, and *Tilia;* other host trees include, in addition to orchard trees, *Betula*, *Corylus* and, infrequently, *Salix*. There is no correlation between the host trees and the two male forms.

A euphorine Braconid has been found to parasitise *B. angulatus* (Leston, 1957a). As parasitised individuals normally die in the 5th larval instar—the parasite larva emerges through a tear in the lateral walls of the host's abdomen—differences between the two forms are unlikely to be due to parasite-induced nanism made manifest in reduced development of the appendages.

During a routine examination of the chromosomes of capsid-bugs (Leston, 1957b) both f. *angulatus* and f. *brevicornis* were examined. The method used was to make testes squashes of young adults in aceto-orcein. Both forms had $2n = 22A + X + Y$. It is not, of course, implied that two members of a genus must differ in diploid number.

In England, the Netherlands, northern Germany and Sweden analysis of the data labels of the material examined shows that there is one generation a year. Adults are found principally between the second week of July and the first week of September: June and October individuals are rare. The two male forms occur irrespective of date and are not seasonal phases.

Discussion.

The *brevicornis* form occurs in England, France, Germany, Czechoslovakia, Sweden, the Netherlands, Finland and Poland (Smreczynski, 1955). It is sympatric with f. *angulatus* and the two can occur together on the same tree in England. Only two f. *brevicornis* were found amongst 66 English males measured (others were dissected but not measured). It is not possible to state if this 64:2 ratio can be compared with the 115:7 ratio of the entire sample series; material submitted from the continent arrived divided into two biassed selections of cabinet specimens. If a genetic origin is postulated for f. *brevicornis* it may be, however, that penetrance is lower in England than elsewhere.

Having ruled out all other "causes" of f. *brevicornis* a genetic origin is suggested. The form is linked to males but it would be unwise to suggest that it has a 1:15 ratio of occurrence on the present data even though this is suggested by the 7:115 of the sample.

The genetic difference between the two forms is expressed in differential development of the lengths of the hind tibiae and antennae. This is apparent by inspection of fig. 1. With increasing size of the bug, as indicated by pronotal width, the ratio of $a_1 + a_2$ to p decreases slowly in f. *angulatus*. In f. *brevicornis* the ratio is smaller to start with, because f. *brevicornis* males tend to be smaller bugs, and decreases rapidly with increase in size of the insect. It follows from fig. 5 that what is true of antennae is also true of hind tibial length.

Nomenclature.

Blepharidopterus angulatus (Fallén) 1807.
Lygaeus angulatus Fallén 1807.
Phytocoris angulatus Fallén 1829.
Blepharidopterus angulatus Kolenati 1845.
Haetorhinus angulatus Fieber 1858.
Aetorhinus angulatus Fieber 1860.
Aetorrhinus angulatus Atkinson 1880 et auctt. plur.
Aetorrhinus angulatus Wagner 1947.
Blepharidopterus angulatus Wagner 1952.
Aetorrhinus brevicornis Wagner 1947 **syn. nov.**
Blepharidopterus brevicornis Wagner 1952.

Acknowledgements.

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Summary and Conclusions.

After examination of 340 *Blepharidopterus angulatus* (Fallén) 1807 (Hemiptera: Miridae) it is concluded:

1. Males are dimorphic, females monomorphic.
2. Pronotal width is distributed normally in both sexes.
3. Male dimorphism is expressed by f. *brevicornis* having relatively shorter hind tibiae and antennae than f. *angulatus*. Lengths of hind tibiae and antennae are positively and highly significantly correllated.
4. *Blepharidopterus angulatus* = *B. brevicornis* (Wagner) 1947, **syn. nov.**
5. Genitalic differences between the two forms said to exist by Wagner are illusory, being based on artifacts.

Original data are deposited with the Royal Entomological Society of London. Dimensions found, with their statistics, are shown in Table 2.

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THE BRITISH ERIOCRANIIDAE AND MICROPTERYGIDAE.

By J. Heath.

These two families appear to have been almost completely neglected by students of the Micro-lepidoptera this century. Owing to their primitive structure they are used as class material by University entomology courses and this has resulted in a number of papers on their mouth-parts, genitalia and wing venation. However our knowledge of the biology and ecology of the Micropterygidae has made little, if any, progress since Chapman first described the larvae in 1894. It seems likely that many species remain to be discovered, particularly in the more temperate regions of the world. Even in Europe, including Britain, we have a very incomplete knowledge of their distribution.

Meyrick, basing his grouping on wing venation, divided his Phylum Micropterygina into the two families Hepialidae and Micropterygidae, the latter containing two sub-families, the Eriocraniades and Micropterygides. When other taxonomic characters such as genitalia and mouth-parts are taken into consideration, together with the larval structure and ecology, it is evident that considerable changes in Meyrick's classification are necessary.

Many different opinions have been expressed on the systematic position of the Eriocraniidae and Micropterygidae but it is not proposed to discuss them in detail, as a world revision of these families is in progress in which the problems involved will be fully discussed. However, it is necessary to mention that the Eriocraniidae are probably the descendants of the group from which the Tineina evolved, whereas the Micropterygidae appear to be an unrelated family with a number of important taxonomic characters widely divergent from those found elsewhere in the Lepidoptera, and are probably of much earlier origin.

Eriocraniidae.

Small diurnal moths with ovate-lanceolate wings, the markings of which are metallic bronzy-golden, silvery-white and purple. They fly in sunshine and are often almost invisible on the wing but during dull weather can be shaken or beaten from the branches and twigs of their foodplants. Head more or less rough haired, ocelli present. Maxillary palpi well developed five-segmented; laciniae entirely absent; mandibles completely non-functional, reduced to rounded lobes; galeae developed into a rudimentary, functional proboscis; labial palpi well

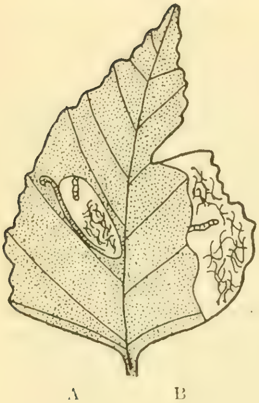


Fig. 1

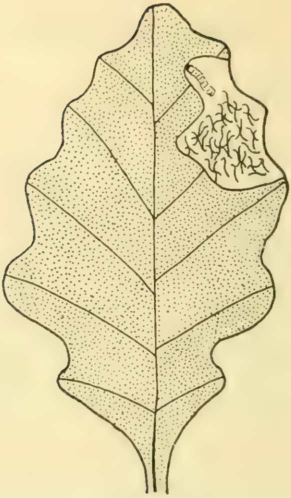


Fig 2

Fig. 1 *Eriocrania* mines in a birch leaf showing :—
A, a blotch mine commencing as a linear mine and
B, leaf distortion caused by larva mining during leaf growth.
Fig. 2 *Mnemonica* mine in an oak leaf.

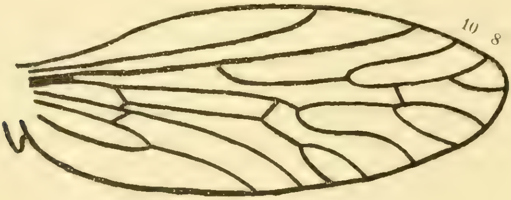


Fig. 3

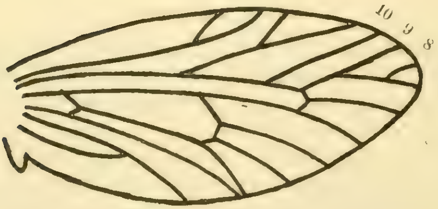


Fig. 4

developed, three segmented. Middle tibiae with one apical spur. Forewings with jugum; hindwings with frenulum. Venation of both wings almost or quite identical with ten or more veins. Male genitalia with tegumen divided into two peaked arms, which probably represent the uncus. Valvae represented by papillae bearing a spine, often obscure. Sacculus two heavily spined pads. Aedeagus united with anellus at base. Saccus replaced by the eighth segment bearing connecting rods. On the fourth tergite of the body two curious rounded projections in both sexes, and on the third tergite of the female two openings covered with a fine membrane. Ovipositor extensile with cutter.

Egg ovoid in shape, delicate, transparent and nearly colourless, laid in the parenchyma of a leaf or in a leaf bud.

The larvae are apodal leaf miners forming a blotch mine (sometimes with a linear mine leading to the blotch) in birch, hazel, oak and hornbeam leaves. The pupae, which have large mandibles, are contained in subterranean cocoons. The birch feeding species seem to show a marked preference for young trees under 15 feet in height. Mines of this family may be recognised easily by the characteristic long, intertwining threads of frass deposited throughout the blotch. When the ova are laid in the leaf bud the leaf is distorted when it subsequently develops (Figs. 1 and 2).

Key to Genera.

Forewings with 9 absent (Fig. 3) .... *Eriocrania* Zell.
Forewings with 9 present (Fig. 4) ...... *Mnemonica* Meyr.

Eriocrania Zell.

Head with loose rough hairs. Antennae about one-half, filiform. Labial palpi moderate, porrected, hairy beneath. Maxillary palpi long, several jointed, filiform, folded. Middle tibiae with one apical spur; posterior tibiae thinly hairy above. Forewings with 1a running into 1b, forming long basal furcation, 1c well defined connected with lower margin of cell by bar near base, 2 and 3 approximated, forked parting vein well defined, rising out of lower margin of cell near base, terminating in 4 and 5, between which transverse vein is absent, no secondary cell, 7 and 8 stalked, 7 to apex, 9 absent, 11 from before middle without additional branch, 12 without branch. Hindwings under 1, ovate-lanceolate, cilia three-fourths; venation as in forewings but 1a out of 1b near base, diverging, 1b connected with 1c by bar near base, 2 and 3 remote.

This genus contains 8 species apparently confined to Europe and Japan of which 7 occur in Britain. The adults appear very early in the year, are hard to see and very liable to be overlooked.

KEY TO SPECIES.

1. Antennae long, $\frac{3}{5}$ .... *semipurpurella* Steph.
Antennae short, not more than $\frac{1}{2}$ .... 2.
2. Forewings without markings .... *fimbriata* Wals.
Forewings with markings .... 3.
3. Forewings rather short and broad .... 4.
Forewings elongate .... 5.
4. Forewings very sharply strigulated .... *sparrmannella* Bosc.
Forewings rather suffusedly strigulated and veined ....
salopiella Staint.
5. Dorsal spot distinct .... 6.
Dorsal spot indistinct or absent .... *chrysolepidella* Zell.
6. Forewings very sharply strigulated .... *sangii* Wood.
Forewings suffusedly strigulated .... *purpurella* Haw.

1. *Eriocrania semipurpurella* Steph. (*inconspicuella* Wood). Plate 8, Fig. 10.

Imago. Exp. 10-15 mm. *Head*—grey. *Antennae*—brown, $\frac{3}{5}$. *Thorax*—grey. *Abdomen*—grey. *Forewings*—elongate, bronzy-purple, more or less sprinkled pale shining golden; an indistinct, often small, transverse pale golden dorsal spot before tornus, frequently obsolete; cilia bronzy-grey, on dorsal spot ochreous-whitish. *Hindwings*—bronzy-grey, posteriorly purplish-tinged.

A common species amongst birch. Rests on twigs and buds, flying rapidly in sunshine or when disturbed. Widely distributed throughout Britain and Ireland extending as far north as the Shetlands; abroad in north and central Europe and Japan. April.

Larva. Whitish; head pale ochreous-brown, mouth darker; in a blotch mine in leaves of birch. May.

2. *Eriocrania sangii* Wood. Plate 8, Fig. 14.

Imago. Exp. 11-12 mm. *Head*—pale ochreous more or less mixed fuscous. *Antennae*—dark golden, $\frac{1}{2}$. *Thorax*—densely ciliate, fuscous. *Abdomen*—fuscous. *Forewings*—elongate, shining purple with admixture of bright blue scales, with numerous pale shining golden irregular spots; a subtriangular pale golden dorsal spot before tornus, reaching half across wing; cilia yellowish-grey, on dorsal spot whitish. *Hindwings*—bronzy-grey, towards apex purplish-tinged.

A local species found amongst birch. It has been recorded from England as far north as Herts. and Hereford; abroad in central and north Europe. April.

Larva. Grey; head black with a central patch and mouth brown; 2 with two groups of black spots; in a brownish blotch mine in leaves of birch. May.

3. *Eriocrania chrysolepidella* Zell. (*kaltenbachii* Staint.). Plate 8, Fig. 13.

Imago. Exp. 9-11 mm. *Head*—fuscous. *Antennae*—dark brown, ½. *Thorax*—fuscous. *Abdomen*—fuscous. *Forewings*—elongate, pale shining golden, more or less suffusedly strigulated or sometimes wholly suffused reddish-purple with scattered bright blue scales; a rather indistinct subtriangular dorsal spot of ground-colour before tornus not reaching half across wing; cilia pale golden. *Hindwings*—grey, towards apex purplish-tinged.

Local; only recorded from southern England as far north as Essex and Hereford; abroad in central Europe. April.

Larva. Whitish; head pale brown, mouth darker; two greyish-tinged marks on 2; 6-11 with minute projections; in a blotch mine in leaves of hazel and hornbeam. May.

4. *Eriocrania fimbriata* Wals. Plate 8, Fig. 15.

Imago. Exp. 11 mm. *Head*—greyish. *Antennae*—less than ½. *Forewings*—shining golden, without markings; cilia yellowish-white. *Hindwings*—bronzy-purple; cilia yellowish-white.

Known from two specimens only taken at Wellington (Berks.); not recorded elsewhere but Continental specimens are known which may be referable to this species. April.

Larva unknown.

5. *Eriocrania purpurella* Haw. Plate 8, Fig. 9.

Imago. Exp. 9-11 mm. *Head*—fuscous, somewhat mixed grey-whitish. *Antennae*—dark fuscous, less than ½. *Forewings*—elongate, pale shining golden, strigulated and spotted purple; a rather indistinct transverse dorsal spot of ground colour before tornus not reaching half across wing; cilia light yellowish-grey. *Hindwings*—purplish-grey partially suffused pale golden, deeper purplish towards apex; cilia light yellowish-grey.

Common amongst birch and widely distributed throughout Britain to Sutherland; abroad in central Europe. April.

Larva. Whitish; head whitish, mouth pale brown; 6-11 with small projections; in a blotch mine in leaves of birch. May.

6. *Eriocrania salopiella* Staint. Plate 8, Fig. 11.

Imago. Exp. 10-12 mm. *Head*—ochreous, grey-whitish, somewhat mixed dark fuscous. *Antennae*—dark brown, about ½. *Thorax*—densely ciliate, ochreous-grey-whitish. *Abdomen*—ochreous-grey-whitish. *Forewings*—rather short and broad, pale shining golden, strigulated and sometimes partly suffused purple, veins posteriorly purple; a well marked subtriangular dorsal spot of ground-colour before tornus reaching half across wing; an indistinct pale costal spot beyond this; cilia purplish grey, on dorsal spot ochreous-whitish. *Hindwings*—grey, posteriorly purplish-tinged.

Occurs locally amongst birch. Recorded from Britain as far north as Westmorland; abroad in west and central Europe. April.

Larva. Whitish, head pale brown; anterior edge of 2 brownish; in an elongate ovate blotch mine in leaves of birch. May.

7. *Eriocrania sparrmannella* Bosc. (nec *sparmannella* auct.). Plate 8, Fig. 7.

Imago. Exp. 10-13 mm. *Head*—pale grey, somewhat mixed dark fuscous. *Antennae*—dark fuscous, hardly ½. *Thorax*—pale grey. *Abdomen*—pale grey. *Forewings*—rather short and broad, pale shining golden, strongly and sharply strigulated purple; a narrow erect dorsal spot of ground-colour before tornus, reaching half across wing; cilia grey, sometimes obscurely barred ochreous whitish. *Hindwings*—rather dark grey, towards apex purplish-tinged.

Occurs locally amongst birch in Britain to Sutherland and in Ireland; abroad in northern and central Europe and Japan. May.

Larva. Whitish, head brown; in blotch mine (rectangular at first) in leaves of birch. June, July.

Mnemonica Meyr.

As *Eriocrania* but forewings with 9 present sometimes out of 7, secondary cell more or less defined, 11 from before middle, with an additional branch (11a) above middle to costa, 12 often with short additional branch (13) from near apex to costa.

Seven species have been described from this genus, two from Europe, both of which occur in Britain and five from north America. Their habits are similar to *Eriocrania*.

KEY TO SPECIES.

Dorsal spot white .... *unimaculella* Zett.
Dorsal spot indistinct, pale golden ... *subpurpurella* Haw.

1. *Mnemonica unimaculella* Zett. Plate 8, Fig. 12.

Imago. Exp. 9-11 mm. *Head*—fuscous, mixed ochreous-whitish. *Antennae*—dark fuscous, ½. *Thorax*—fuscous. *Abdomen*—fuscous. *Forewings*—bronzy-purple, more or less sprinkled pale shining golden; a narrow slightly curved transverse white dorsal spot before tornus, reaching half across wing; cilia grey; 13 absent. *Hindwings*—grey, posteriorly purplish-tinged.

Widely distributed and generally common throughout Britain to the Caledonian Canal and in E. Ireland; abroad in north and central Europe. March, April.

Larva. Whitish; head brown, mouth darker, posterior lobes showing through 2 as blackish spots; 6 with small projections; in a blotch mine in leaves of birch. May.

2. *Mnemonica subpurpurella* Haw. (*fastuosella* Zell.). Plate 8, Fig. 8.

Imago. Exp. 9-14 mm. *Head*—ochreous mixed whitish and grey. *Antennae*—pale golden, ⅗. *Thorax*—dark grey, densely ciliate with ochreous cilia. *Abdomen*—dark grey, ciliate. *Forewings*—elongate, pale shining golden, usually with a few scattered purple strigulae centred with bright blue scales (the form *fastuosella* Zell. has the forewings heavily strigulated purple); a very indistinct paler dorsal spot before tornus; cilia grey; 13 present. *Hindwings*—yellowish-grey, posteriorly purplish-tinged.

Very common in oak woods flying in bright sunshine. It is also attracted to mercury vapour lamps. In dull weather it rests on the trunks and branches of oak trees. Widely distributed throughout Britain to the Caledonian Canal and in Ireland; abroad in Europe. April to May.

Larva. Whitish; head pale brown; in a blotch mine, commencing at the edge, in oak leaves. (Fig. 2.) June.

MICROPTERYGIDAE.

Small diurnal insects with ovate-lanceolate wings, the markings of which are metallic bronzy-golden and purple. They fly in sunshine and are often almost invisible on the wing. Many species are pollen feeders using their maxillae for the purpose. Head more or less rough-haired; ocelli present. Maxillary palpi well developed, six-jointed, usually folded; mandibles developed and fully functional; laciniae present; galeae free--no proboscis; ligula atrophied; labial palpi three-jointed, sometimes rudimentary or obsolete. The food is passed from the mandibles to a structure peculiar to Micropterygidae—the triturating basket—where the pollen grains are further ground up to aid digestion. Posterior tibiae with four spurs; middle tibiae with apical group of bristles, without spurs. Forewings with jugum; hindwings with frenulum, venation almost or quite identical with that of forewings, 1c present with ten or more other veins. Male genitalia with uncus highly developed into two lobed arms; valva with specialised hairs or spines, hooked at apex. Female ovipositor simple without connecting rods; no separate ostium; ductus bursae with complicated organ; bursa small; signum absent; abdomen with seven segments.

The egg is spherical, opaque, studded with minute erect rods and covered with a snow like coating. It is laid externally.

Larva on segments 5-12 has eight pairs of jointed abdominal legs resembling the thoracic legs, each terminating in a claw and there is a tri-lobed anal sucker. Eight rows of subglobose processes paired on four longitudinal ridges. Antennae well developed, four jointed, about twice the length of the head-capsule. Detailed descriptions of the larva of *Micropteryx* are given by Hinton (1958) and Martuinova (1950), the latter giving figures of the chaetotaxy, etc.

Pupa with all segments free, subterranean or in a cocoon amongst litter.

At present nine genera and 83 species have been described from Europe, North Africa, South Africa, Asia Minor, Formosa, Japan, Fiji, Australia, New Zealand and North America. One genus and five species occur in Britain.

The larvae feed on Mosses and Liverworts. From the world wide distribution and their structure it is evident that this is a very primitive family. Virtually nothing is known of the life histories and ecology but, as the adults are normally present in vast numbers where they occur, they may play a significant rôle in the communities to which they belong.

Micropteryx Hb.

Head with dense rough hairs. Antennae 2/3 to nearly 1, submoniliform. Labial palpi obsolete, maxillary palpi long, several jointed, folded. Posterior tibiae with spurs placed in groups of spines. Forewings with 1a running into 1b, forming a long basal furcation, 1c well defined, connected with lower margin of cell by bar near base, 2 and 3 approximated, forked parting-vein well defined, rising out of lower margin of cell near base, terminating in 4 and 5, between which transverse vein is absent, secondary cell defined, 7 separate to costa, 11 from one-third of cell, sometimes connected by bar with 12, 12 giving rise to an additional branch (13) above in middle. Hindwings under 1, ovate-lanceolate, cilia 1; venation as in forewings, but 1a out of 1b near base, diverging, 2 and 3 remote, 12 without additional branch.

The largest genus, and the only one represented in Britain, containing 33 species apparently restricted to Europe, North Africa, Asia Minor and Japan. The known larvae feed in wet moss (*Hypnum*). The adults frequent blossoms (*Caltha*, etc.) feeding on the pollen.

KEY TO SPECIES.

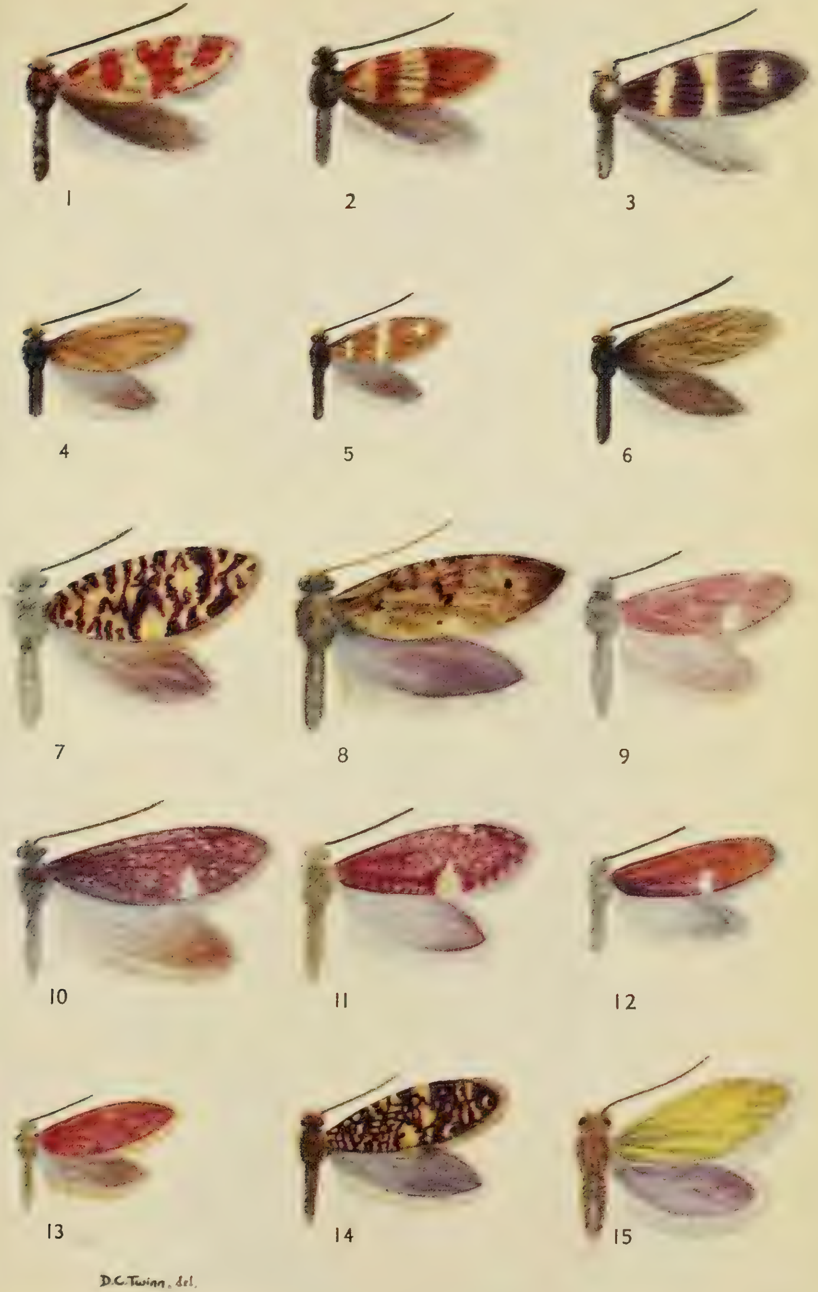
1.	Head black	*mansuetella* Zell.
	Head ferruginous	2.
2.	Forewings with transverse fasciae	3.
	Forewings not fasciated	5.
3.	Markings of forewings white	*aruncella* Scop. ♂
	Markings of forewings not white	4.
4.	Forewings with ground colour bronzy-purple	*aureatella* Scop.
	Forewings with ground colour golden	*thunbergella* F.
5.	Forewings with base purple	*calthella* L.
	Forewings with base of costa only purple	*aruncella* Scop. ♀

1. *Micropteryx thunbergella* F. Plate 8, Fig. 1.

Imago. Exp. 7-10 mm. *Head*—light ferruginous. *Antennae*—black. *Thorax*—dark grey with tegulae purple-tinged. *Abdomen*—dark grey, posteriorly dark ferruginous. *Forewings*—rather pale shining bronzy-golden; a dorsal spot near base, a rather oblique fascia before middle, not reaching dorsum, another beyond middle furcate towards costa, and a costal blotch before apex sometimes connected with this dorsally,

PLATE VIII

1. *Micropteryx thunbergella*
2. *Micropteryx mansuetella*
3. *Micropteryx aureatella*
4. *Micropteryx aruncella* ♀
5. *Micropteryx aruncella*
6. *Micropteryx calthella*
7. *Eriocrania sparrmannella*
8. *Mnemonica subpurpurella*
9. *Eriocrania purpurella*
10. *Eriocrania semipurpurella*
11. *Eriocrania salopiella*
12. *Mnemonica unimaculella*
13. *Eriocrania chrysolepidella*
14. *Eriocrania sangii*
15. *Eriocrania fimbriata*



x6

Micropteryx and *Eriocrania.*

purplish tending to brownish-crimson. *Hindwings*—rather dark bronzy-grey, posteriorly purplish-tinged.

A common woodland species. Rests on the upper surface of the lower leaves of sycamore (and probably other trees) in the early morning. A swarming flight around the tops of trees occurs later in the day.

Widely distributed throughout England and Wales; abroad in North and Central Europe. May.

Larva. Unknown.

2. *Micropteryx mansuetella* Zell. Plate 8, Fig. 2.

Imago. Exp. 8-9 mm. *Head*—black. *Antennae*—black. *Thorax*—black. *Abdomen*—black. *Forewings*—rather pale shining bronzy-golden; a costal spot near base, a broad fascia before middle not reaching dorsum and posterior half of wings deeper golden brown, often more or less purple-tinged. *Hindwings*—rather dark bronzy-grey, posteriorly purplish-tinged.

A local species occurring in swampy places in woods, feeding on the pollen of *Carex acutiformis* Ehrh.

Distributed throughout Britain as far north as Perth; abroad in North and Central Europe. Mid-May to early June.

Larva. Unknown.

3. *Micropteryx aureatella* Scop. (*allionella* F.). Plate 8, Fig. 3.

Imago. Exp. 8-11 mm. *Head*—light ferruginous. *Antennae*—black. *Thorax*—dark grey. *Abdomen*—dark grey. *Forewings*—shining bronzy-purple; a straight fascia towards base, a rather oblique, somewhat curved, median fascia and a spot towards costa posteriorly, pale shining golden. *Hindwings*—bronzy-grey, posteriorly purplish-tinged.

A local species occurring in woods and, sometimes, on rough hillsides, resting on *Vaccinium* and, occasionally, on *Mercurialis* and other plants.

Distributed throughout Britain to Sutherland and Ireland; abroad in Europe and Japan. Mid-May to early June.

Larva. Unknown.

4. *Micropteryx aruncella* Scop. (*seppella* F.; *podevinella* Dup.).
Plate 8, Figs. 4 and 5.

Imago. Exp. 6-8 mm. *Head*—ferruginous. *Antennae*—black. *Thorax*—black. *Abdomen*—black. *Forewings*—shining bronzy-golden, base of costa purple; in male a transverse mark at ¼ sometimes reaching costa, a straight slender median fascia and sometimes a costal mark at ¾ (form *seppella* F.) shining silvery-white. *Hindwings*—dark grey, posteriorly purplish-tinged.

A common species occurring in dry, open, woodland and on wooded hillsides feeding on the pollen of *Helianthemum*, *Galium*, and *Veronica chamaedrys* L.

Widely distributed throughout Britain, to Perth, and Ireland; abroad in Europe. Mid-June and July.

Larva. Stated to feed on Hepaticae (Liverworts) but more probably on Mosses.

5. *Micropteryx calthella* L. Plate 8, Fig. 6.

Imago. Exp. 8-10 mm. *Head*—deep ferruginous-yellow. *Antennae*—black. *Thorax*—black. *Abdomen*—black. *Forewings*—shining bronzy-golden somewhat greenish-tinged; base purple; *Hindwings*—rather dark bronzy-grey.

Very common in the damper parts of woods feeding on the pollen of *Ranunculus*, *Caltha palustris* L., *Mercurialis perennis* L., *Carex*, *Fragaria vesca* L., *Cardamine pratensis* L., *Ajuga reptans* L. and other plants.

Widely distributed throughout Britain to the Orkneys and Ireland; abroad in Europe and North Africa. May and early June.

Larva. On *Hypnum* (Moss), also stated to feed on Hepaticae (Liverworts).

In conclusion, it ought to be mentioned that the Keys constructed for the species probably leave much to be desired. The problem of devising satisfactory Keys to the Lepidoptera which are both reliable and based on characters which can be observed without the use of specialised techniques or equipment not normally possessed by the amateur is very real and difficult. However, it is hoped that the keys presented here, together with the coloured plate, will enable Lepidopterists, both beginner and expert, to run down our British species of Eriocraniidae and Micropterygidae without undue difficulty. It should also be mentioned that the taxonomy of these families is under revision and that, with minor corrections, Meyrick's arrangement has been followed throughout.

When using the Plate it should be borne in mind that this was drawn with the specimens lighted by direct frontal daylight from a north facing window. In other lights, particularly sunlight, certain species will appear to be somewhat differently coloured due to the metallic appearance produced by interference patterns resulting from the deep sculpturing of the scales.

In order to conform with the procedure adopted by the other authors in this series strict conformity to Article 23 of the International Code of Zoological Nomenclature has not been adopted.

ACKNOWLEDGMENTS.

Acknowledgment is due to my colleague, Mr. D. C. Twinn, M.A. (Cantab), F.R.E.S., for his skill and patience in producing Figs. 1-14 of the Plate and for reading and criticising the manuscript; to Mr. S. N. A. Jacobs, S.B.St.J., F.R.E.S., for Fig. 15 of the Plate and the loan of specimens; to the Keeper of Entomology, British Museum (Nat. Hist.) for permission to figure the type specimen of *Eriocrania fimbriata* Wals.; to Mr. J. D. Bradley of the British Museum (Nat. Hist.) for many helpful suggestions and advice; to Mr. H. N. Michaelis for the

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BOOK REVIEW

The World of Butterflies and Moths. By Alexander B. Klots. 11½″ × 8½″, 207 pp., 84 plates (24 coloured), 20 text-figures. London (George G. Harrup & Co. Ltd.). 1958. Price £3 3s. 0d.

This is a book to be proud of. The remark applies to the author and his assistants as well as to those responsible for the production, the block makers and the printers. Moreover the other members of the South London Entomological and Natural History Society will feel a justifiable pride in that the author is one of their number. Professor Klots of The College of the City of New York and of The American Museum of Natural History is well known to members.

Of the 84 plates 24 are in full colour and depict over 130 butterflies and moths. There are 20 text-figures. By itself this enumeration means little. Let me, therefore, emphasise that the plates are a little over 11 inches by a shade over 8½ inches. The colour plates are 4 colour process with a flat overall varnish giving a high gloss without being vulgarly shiny. The background is artistically tinted and the colours are accurate so that the plates are a pleasure to look at. The monochrome plates are produced photogravure, giving a softer effect than letter press half tone. The large size of the plates enables these photographs to be big enough to show clearly what is intended. For instance the plate of an ichneumon parasitizing a larva leaves no doubt as to the fate of the victim. Most of these photographs are by the author and the subjects are North American but not all. Indeed the book is cosmopolitan. We have again an opportunity of admiring the work of our member Mr. S. Beaufoy. One of his contributions is a full size plate of the two principal forms of the Peppered Moth. Many of the illustrations are the work of a Japanese artist. Among other countries represented are France, Germany and South America.

The text-figures are of generous size, clearly drawn and well reproduced. They are by Mrs. Su-Zan Swain who will, I hope, forgive the printers for calling her Susan.

We are only too familiar with books consisting of elaborate photographs with poor and, perhaps, irrelevant text. This is not the case here. The text is well written, accurate and up to date. It gives an account of the ancestry and relationships of the Lepidoptera, their structure, feeding habits, enemies, special senses, environment, distribution, economic importance and scientific interest. A beginner reading the text would acquire in a very pleasant way a working general knowledge of the Lepidoptera (both macro and micro) which would be reasonably complete both from a biological and from a geographical point of view. But most of our members are not beginners but hardened specialists. They will be reminded of many things they have forgotten and will probably learn some they never knew.

Misprints seem to have been avoided. On page 54 there is a drawing of the wings of a "Gracilaria". This is usually (but not always) spelt with a double l.

The danger of using colloquial names which often have a different meaning in different parts of the world is exemplified by plates 13 and 19 dealing with the Silver Spotted Skipper of the U.S.A. It is not the insect we know from the chalk and limestone of Southern England.

The price is not high for such a book in these days.

The volume is one of the Living Nature Series. Other volumes so far published deal with birds, fishes, mammals, marine life and the Tropics.

T. R. Eagles.

INDEX

PAGE

Albinism 4, 25, 35
Asymmetry 20, 37, 40, 41, 43
Bateson's Law, example of 37
Book Review 126

Field Meetings:
- Bandstead Woods 79
- Benfleet. 77
- Betchworth 70
- Bookham 71
- Box Hill 60
- Buckland Sand Pits and Reigate Heath 62
- Burnham-on-Crouch 74
- Buxted 73
- Chiddingfold 72
- Chilworth 76
- Chobham 66
- Cosford Mill 75
- Halling 65
- Ham Street 68
- Holmbury St. Mary 78
- Horsell Common 69
- Horsley 70
- Hurtmore 72
- Mickleham 76
- Ockham 60, 74
- Otford 65
- Oxshott 61
- Riddlesdown 78
- Seal Chart and Halling 67
- Stanford le Hope 64
- Wrotham 69

Gynandromorphs 1, 24, 32, 43, 44, 72
Homoeosis 33, 42, 48
Melanism 20, 23, 27, 28, 35, 36, 37, 43, 45
Mosaics 35, 40

Papers published—see Contents, page ii

Papers read but not published:
- "Biology of British Shield Bugs, The"—D. Leston 10
- "Cells and Chromosomes"—G. J. Dowrick 6
- "Crocs. and Caddis"—Dr. N. E. Hickin 14
- "Isolation and adaptation in Populations of Lepidoptera"—W. H. Dowdeswell 3
- "Natural History of Harvest Spiders, The"—J. H. P. Sankey 47
- "Nematology"—B. A. Cooper 47
- "Photography of Lepidoptera, The"—W. J. Akester 8
- "Swarming Flies"—Dr. F. van Emden 1

Reduplication of appendages 37
Teratology 9, Pl 1, 37, Pl. 2, 40

PAGE

ARACHNIDA

Black Forest Scorpion ... 29
bruennichi, Argiope ... 14
ulmi, Metatetranychus ... 100

BIRDS

Blackcap ... 60, 71
Bullfinch ... 66
Chiff-chaff ... 60
Coal-Tit ... 66
Crow ... 63
Grasshopper Warbler ... 71
Greenfinch ... 71
Heron ... 63
House Martin ... 66
Jay ... 71
Kestrel ... 71
Linnet ... 66, 71
Little Grebe ...
Magpie ... 71
Mallard ... 71
Missel Thrush ... 66
Moorhen ... 71
Pied Wagtail ... 63
Pipit ... 63
Sand Martin ... 63
Skylark ... 66
Swallow ... 66
Swift ... 66
Tree Creeper ... 60
Whitethroat ... 62, 66, 71
Willow Warbler ... 60, 62, 66
Woodlark ... 62
Yellow Bunting ... 66, 71

COLEOPTERA

aceris, Stenus ... 63
albinus, Platystomos ... 7, 62
analis, Amischa ... 63, 64
anaphe, Tribolium ... 5
antherium, Anthicus ... 74
aquatica, Atheta ... 63
arenarius, Platystethus ... 63
argentatus, Phyllobius ... 67
armiger, Odontaeus ... 19
assimile, Agonum ... 73
atomarium (=minutum), Cryptopleurum ... 63
atrata, Phosphuga ... 64
atratus, Meligethes ... 73
atricapillus, Demetrias ... 63
atripes, Lagria ... 9, 68
atrocephalum, Anthobium ... 63
aurata, Cetonia ... 13
aureolus, Cryptocephalus ... 70
balteatus, Malthinus ... 70
banksi, Chrysolina ... 64
betulae, Deporaus ... 63

PAGE

bifasciatus, Alphitophagus ... 64
biguttata, Tomoxia ... 70, 72
biguttatum, Bembidion ... 63
biguttatus, Notiophilus ... 70
bipunctatus, Psammoechus ... 63
bipustulata (nitida), Aleochara ... 63
bipustulatus, Badister ... 64
brachypterus, Proteinus ... 61
brevicollis, Nebria ... 70
brevipalpis, Helophorus ... 73
brunnipes (=punctatum), Lathrobium ... 63
brunnipes, Stenus ... 73
caesum, Omalium ... 64
calcarata, Leiodes ... 63
calcaratus, Phyllobius ... 63
californicus, Omus ... 53 (fig. 5), 54 (fig. 9 & 10), 55, 57
campanulae, Miarus ... 79
campestris, Cicindela ... 52, 53 (figs. 1, 3 & 4), 54, 55, 55 (fig. 6), 59, 62, 63
canaliculatus, Stenus ... 63
capitatus, Strophosomus ... 73
Carabidae ... 52, 55, 57
Carabini ... 56
cardui (=testaceum), Sphaeroderma 73
castaneum, Tribolium ... 5
cephalotes, Broscus ... 16
cerberi, Aphaenops ... 3
cervinus, Polydrusus ... 63
chalceus, Pogonus ... 74
Cicindela ... 52, 55, 56 (fig. 12), 57, 58, 59
Cicindelidae ... 52
Cicindelinae ... 52, 55, 56, 57, 58
Cicindelini ... 57
cisti (=unicolor), Bruchidius ... 69
clavicornis, Stenus ... 63
clavipes, Otiorrhynchus ... 60
clypeatus (haemorrhoidalis), Metacantharis ... 63
Collyrini ... 57
comma, Stenus ... 63
confluens, Coelambus ... 63
confusum, Tribolium ... 5
constrictus, Ceuthorhynchus ... 64
coriaceus, Carabus (Procrustes) ... 11
cornutus, Platystethus ... 63
corticinus, Carpelimus ... 64
crenata, Bitoma ... 61
crepitans, Brachinus ... 64
cribratum, Trinophylum ... 11
crux-major, Panagaeus ... 8
Ctenostoma ... 55
Ctenostomini ... 57
cupreus, Pterostichus ... 63
curtirostre, Apion ... 73
davidi, Trictenotoma ... 46
deflexum, Liosoma ... 73

PAGE
depressus, Licinus 60
depressus, Megarthrus 61
depressus, Pediacus 13
dermestoides, Pediacus 13
destructor, Tribolium 5
dichroum, Apion 63
didymus, Agabus 63
dilatata, Nebria 47
Dorcatoma 11
dorsalis, Hydroporus 63
dubius (luridus), Acupalpus 63, 73
duodecimstriatus, Hister 63

elysii, Carabus (Coptolabrus) 45

fagi, Cerylon 61
fasciatus, Byrrhus 63
fasciatus, Malthinus 70
fastuosa, Pilemostoma 60
femoratum, Bembidion 63
ferrugineum, Cerylon 61
ferrugineus, Pocadius 81
figurata, Cantharis 9, 69
flaviolus, Malthinus 70
flavipes, Polydrusus 9, 69
flavipes, Stenus 63, 73
flexuosa, Cicindela 57
frontalis, Scymnus 61
fuliginosum, Agonum 63
fulvipenne, Lathrobium 63
fumigatum, Bembidion 10
fuscicornis, Stenus 73

gallica, Cicindela 14
genei, Bembidion, see illigeri
germanica, Cicindela 58 (fig. 14)
germanicus (limicola), Bledius 64
germari, C. violaceus, s.sp. 8
Glow Worm 66
gracilis, Pterostichus 63
graminis, Chrysolina 14
granulatus, Carabus 1
gustavi, Dicheirotrichus 74
guttula, Bembidion 62

haemorrhoidalis (=clypeata), Metacantharis 63
harpalinus, Bradycellus 13, 63
heeri, Calabius 48
heisei, Pselaphus 73
helferi, Brachygluta 64
helopioides, Oodes 8
hermanni, Hygrobia 3
hibernicus, C. granulatus, s.sp. 1
hirtellus, Ptinus 5
humeralis, Sitona 63
hybrida, Cicindela 56 (fig. 11), 58 (fig. 14), 59
hypnorum, Tachyporus 74
hypochaeridis, Cryptocephalus 70
illigeri, B. genei, s.sp. 63

PAGE
immaculatus, S. frontalis, var. 61
incana, Alianta 63
instabilis, Anthicus 74
juno, Stenus 63
laevigata, Ablattaria 17
laevigatum, Agathidium 8
laevissimus, Promecognathus 2
lampros, Bembidion 63
latus, Harpalus 61
lichenis, Lema 73
lilii, Lilioceris 67
limicola (=germanicus), Bledius 64
limonii, Apion 46
linearis, Xantholinus 73
livida, Leptura 11
lividus, Conosomus 74
longicornis, Autalia 7, 61
longimanus, Dorytomus 60
longiuscula, Atheta (Liogluta) 61
loti, Apion 73
lunatus, Gronops 63
lunulatum, Bembidion 74
luridus (=dubius), Acupalpus 63, 73
maculata, Strangalia 11
madens, Tribolium 5
mannerheimi, Deporaus 9, 69
Manticora 52, 55
Manticorini 57
marcida, Atheta (Dimetrota) 61
marginatus, Dalopius 63
marginatus, Malthodes 70
maritima, Cicindela 56 (fig. 12), 58 (fig. 14), 59
maura, Ocyusa 63
Megacephala 59
Megacephalini 57
melanogrammus, Strophosomus 73
melanura, Nacerdes 16
melanura, Strangalia 11
menthastri, Chrysolina 72
meridianus, Acupalpus 63, 73
meridianus, Stenocorus 11
miniatum, Apion 73
minimum, Bembidion 64, 74
minor, Pterostichus 63
minuta, Helodes 73
minutum (atomarium), Crytopleurum 63
minutus, Laccobius 63
mixtus, Stenolophus 63, 73
molochinus, Quedius 64
monilis, Carabus 35
muchronata, Blaps 4
multipunctata, Blethisa 10
myrmecophilus, Gyrohypnus (Othius) 73
nanus, Stenus 73
napi, Psylliodes 73
nebulosa, Mesosa 11
nebulosus, Leiopus 11, 73

PAGE

nigricans, Catops 64
nigrita, Pterostichus (Feronia) 73
nitens, Platystethus 64
nitida (=bipustulata), Aleochara ... 63
nitidula, Chalcoides 9, 63
noctiluca, Lampyris 66
normannum, Bembidion 74
oblongum (=obscurum), Agonum ... 73
obscurum (oblongum), Agonum 73
obscurum, Megasternum 74
obscurus, Agriotes 63
obsoletus, Dicheirotrichus 64
ocellata, Anatis 62
Omus 52, 55
ossium, Stenus 63
ovatus, Hyphydrus 63
pallidus, Cylindronotus 10
parallelepipedus, Abax 10
parvulus, Cryptocephalus 70, 73
pellucidus, Barypithes 63
Phaeoxantha 55
piceus, Mycetophagus 11
picipes, Quedius 64
Pogonostoma 55
polygoni, Gastrophysa 63
populi, Byctiscus 9, 69
populi, Chrysomela 62
posticus, Phytonomus 64
proscarabaeus, Meloë 6
pubescens, Corticaria 74
pumicatus, Stomis 64
punctatum (brunnipes), Lathrobium 63
purpurascens, C. violaceus, s.sp. ... 8
pusilla, Galerucella 63
pusillus, Cryptocephalus 70
pusillus, Phloeonomus 61
pusillus, Stenus 63
quadrimaculata, Phyllobrotica 72
quadrimaculatum, Bembidion 63
quadripunctata, Harmonia ... xxxvi, 13
rectangulus, Philonthus 63
regensteinensis, Sitona 63
riparius, Elaphrus 63
ripicola, Lathrobium 63
rogeri, Stenus 63
rubiginosa, Cassida 71
rufescens, Aphodius 13
ruficorne, Agonum 63, 73
ruficornis, Atomaria 61
ruficornis, Grammoptera 11
ruficornis, Haliplus 63
rufilabris, Kateretes 73
rufipes (=signatus), Tachinus 73
rustica, Mantura 63
salinus, Dyschirius 64
schmidti, Leptodirus 3
scirpi, Notaris 63
sculpturatus, Oxytelus 63

PAGE

scutellata, Coccidula 64
serra, Dorcatoma 13
serraticornis, Pyrochroa 64
sexdecimpunctata, Tytthaspis 74
sharpi, Bradycellus 73
signatus (rufipes), Tachinus 73
similis, Stenus 63
simplex, Donacia 73
sollicitans, C. violaceus, var. 8
solutus, Tachyporus 73
sphacelatus, Aphodius 63
striola, Hister 61
sturmii, Agabus 63
sulicicollis, Ceuthorrhynchus 64
surinamensis, Oryzaephilus 64
sylvatica, Cicindela ..... 58 (fig. 14), 62
tabacicola, Alosterna 11
tanaceti, Galeruca 71, 81
tarsalis, Stenus 73
taxicornis, Labidostomis 47
tectus, Ptinus 64
teracolum (ustulatum), Bembidion .. 63
tereticollis, Polydrusus 67
terminatum, Lathrobium 63
terricola, Laemostenus 64
tesselatus, Ontholestes 77
testaceum (cardui), Sphaeroderma ... 73
tetracarinatus, Oxytelus 63
tomentosus, Caenorhinus 9, 69
transversa, Crepidodera 73
tristis, Silpha 64
turbatus, Ceuthorrhynchus 64
typhoeoides, Typhaeus 6
typhoeus, Typhaeus 6
umbratilis, Philonthus 61
undecimpunctata, Coccinella 74
undulata, Orchesia 6
unicolor (cisti), Bruchidius 69
unifasciatus, Somotrichus ... xxxvi, 12
ustulatum (=teracolum), Bembidion 63
velox, Nargus 64
vespilloides, Necrophorus 80
vigintiquattuorpunctata, Subcoccinella 74
vilis, Dropephylla 64
violaceus, Carabus ..... 8, 52, 55, 53 (fig. 2), 54 (fig. 8)
viridescens, Meligethes 73
viridis, Cassida 71, 72
vitellinae, Phyllodecta 73

DERMAPTERA

annulipes, Anisolabis 49
bipunctata, Anechura 18
maritima, Anisolabis 49
riparia, Labidura 49

PAGE

DICTYOPTERA

aeruginosa, Polyspilota ... 29
annulata, Oxyptilus ... 29
centralis, Sphrodromantis ... 29
decipiens, Loboptera ... 48
deserti, Iris ... 29
fasciata, Rivetina ... 29
finoti, Severinia ... 29
gracilis, Hypsicorypha ... 29
guichardi, Hypsicorypha ... 29
lapponicus, Ectobius ... 13
lividus, Ectobius ... 13
marginalis, Pelmatosilpha ... 46
mendica, Blepharopsis ... 11, 29
panzeri, Ectobius ... 13
Praying Mantis ... 48
religiosa, Mantis ... 48
spinulosa, Eremisphila ... 29

DIPTERA

albimanus, Platycheirus ... 62
alternata, Zonosema (Rhagoletis) 78, 90
bardanae, Tephritis ... 90, 91
blotii, Myopites ... 89
brassicae, Liriomyza ... 10
cardui, Urophora ... 89
cinctellus, Syrphus ... 62
cometa, Tephritis ... 90
conjuncta, Tephritis ... 90
cuspidata, Urophora ... 89
dumetorum, Dicranomyia ... 10
falcata, Trypeta ... 89
flavipennis, Oxyna ... 89
frauenfeldi, Myopetes ... 89
guttularis, Ditricha ... 89
hyoscyami, Tephritis ... 90
jaceana, Urophora ... 89
marginata, Sphenella ... 89
mellinum, Melanostoma ... 62
microceras, Ceriocera ... 89
misella, Paroxyna ... 89
notata, Thaumatomyia ... 17
parietina, Oxyna ... 89, 90
pectinicornis, Ctenophora ... 7
permundus, Phagocarpus ... 90
poeciloptera, Platyparea ... 89
pupillata, Hoplochaeta ... 89
pyrastri, Scaeva ... 62
quadrifasciata, Urophora ... 91
radicum, Egle (spreta, Anthomyia) . 12
solstitialis, Urophora ... 89
soluta, Psectrosciara ... 71
sonchi, Ensina ... 91
spreta, Anthomyia (=radicum, Egle)
stylata, Urophora ... 89
tricinctus, Syrphus ... 62
tussilaginis, Trypeta ... 90
viridis, Gymnochaeta ... 62

PAGE

wiedamanni, Gonioglossum ... 90
winthemi, Tephritis ... 90
zoë, Spilographa ... 91

FLOWERING PLANTS

absinthium, Artemisia ... 96
aconitum ... 97
acris, Erigeron ... 76, 80
acutiformis, Carex ... 123
affinis, Nicotiana ... 40
Alnus ... 100, 112
Angelica ... 71, 72
amarella, Gentiana ... 80
anglicum, Aconitum ... 96
angustifolium, Chamaenerion ... 1, 69, 70, 73
angustifolium, Eriophorum ... 62
anthropophorum, Aceras ... 66
aquatica, Mentha ... 72
aquilinum, Pteridium (Pteris) ... 67
Arctium spp. ... 90
arvense, Cirsium ... 89, 90
arvense, Trifolium ... 76
arenaria, Ammophila ... 20
arvensis, Lycopsis ... 72
arvensis, Spergula ... 72
Asparagus ... 89
Aspen ... 9, 68
Atriplex ... 77
Autumn Gentian ... 80
aviculare, Polygonum ... 2
Bartsia ... 77
Betula ... 100, 112
Bilberry ... 67
Black Nightshade ... 95
Black Poplar ... 66
Blackthorn ... 77, 78
Blue Fleabane ... 76, 80
botrys, Teucrium ... 80
Branched Bur-reed ... 71
Bristle Club Rush ... 71
Broom ... 9, 69
Buckthorn ... 74, 79, 80
Cabbage ... 95
caerulea, Passiflora ... 31
Calamintha ... 66
caltha ... 122
cannabinum, Eupatorium ... 72, 95
Carduus ... 79
Carex ... 124
Carlina ... 68
carota, Daucus ... 77, 78
cathartica, Rhamnus ... 79, 80
Celery ... 95
Celery-leaved Crowfoot 71
Cerasus ... 18, 20
chamaecistus, Helianthemum ... 66
chamaedrys, Veronica ... 123

PAGE
Cherry Laurel 77
Chervil 72
Chrysanthemum spp. 91
Circaea 75
Coleus 4
columbinum, Geranium 72
Common Dodder 76
Common Gromwell 66
Common Milkwort 66
Common Rockrose 66
conyza (squarrosa), Inula 65, 66
corniculatus, Lotus 66
Corylus 100, 112
Cotton Sedge 62
Couch-grass 48
Cowberry 37
Cow Parsley 65
Cow Parsnip 72
Cowslip 7
Crab Apple 79
Crataegus 31, 66
crispus, Carduus 90
crithmoides, Inula 89
Crosswort 66
cruciata, Galium 66
crucifolius, Senecio 42
Cut-leaved Geranium 66
Cut-leaved Germander 80
Dahlia 17
Delphinium 7, 96
demissa, Carex 68
dissectum, Geranium 66
Dogwood 79
Dog Rose 68
dioica, Bryonia 90
draba, Cardaria (Lepidium) 42, 64
dulcamara, Solanum 72, 74
dysenterica, Pulicaria 89
elatior, Orobanche 70
elatius, Arrhenatherum 26
Enchanter's Nightshade 75
epigejos, Calamagrostis 14
epithymum, Cuscuta 76
Erodium 14
erucifolius, Senecio 42
europaeus, Euonymus 66, 79
europaeus, Lycopus 72
False Oat Grass 26
filix-femina, Athyrium 75
flammula, Ranunculus 71
flos-cuculi, Lychnis 23
galericulata, Scutellaria 72
Galium 123
Garlic Mustard 65
Geranium 14
Gipsy-wort 72
glabra, Ulmus 40
glomerata, Campanula 77

PAGE
Golden Rod 73, 78, 80
Golden Saxifrage 75
Grass Vetchling 68
Great Reedmace 71
Hare's-foot Trefoil 76
Hawkweed Ox-tongue 80
Hedge Woundwort 72
Helianthemum 122
Hemlock 71
Hemp Agrimony 95
Hemp Nettle 78
Herb Paris 65
hieracioides, Picris 86
Hieracium 89
hirsutum, Epilobium 64
Holm Oak 19
Hypericum 66, 77
ilex, Quercus 19
Inula 60
Iris 7
jacobaea, Senecio 13, 77, 79 80
japonica, Torilis 71
Knotgrass 2
Lady Fern 75
laevis, Amelanchier 60
lanceolata, Plantago 64
lantana, Viburnum 77
lappa, Arctium 65, 66
latifolia, Typha 71
laureola, Daphne 66
laurocerasus, Prunus 77
Lesser Skullcap 68
Lesser Spearwort 71
leucanthemum, Chrysanthemum ... 90
Lotus 66
lutea, Reseda 66
macrocarpa, Cupressus 7
maculatum, Conium 64, 71
manescavi, Erodium 14
Man Orchid 66
Maple 66
maritima, Artemisia 74
maritimus, Lotus 21
maritimus, Scirpus 64
maritimus, Tetragonolobus 21
Marjoram 79
Marram Grass 26
House-ear Hawkweed 66
Marsh Speedwell 71
Marsh Wort 71
Marsh Woundwort 71
Mercurialis 123
Mesembryanthemum 8
millefolium, Achillea 89
minor, Scutellaria 68
mollis, Holcus 12
Monkshood 96
monogyna, Crataegus 96

PAGE

Mugwort 77
muralis, Cymbalaria 72
neapolitanum, Cyclamen 11
nigra, Ballota 64
nigra, Centaurea 89, 91
nigra, Populus 60
nigrum, Solanum 95
nissolia, Lathyrus 68
nodiflorum, Apium 71
noli-me-tangere, Impatiens 39
nutans, Carduus 89
officinale, Lithospermum 66
officinalis, Valeriana 72
oleraceum, Cirsium 8
oppositifolium, Chrysosplenium 75
Origanum 67
palustris, Caltha 124
palustris, Stachys 71
perennis, Mercurialis 124
perfoliata, Blackstonia 80
perpusillus, Ornithopus 63
petiolata, Alliaria 65
petraea, Quercus 92, 93
pilosella, Hieracium 66
plantago-aquatica, Alisma 71
Plantain 66
polifolia, Kalmia 66
Polypody 75
pratensis, Cardamine 124
Prunus 18, 26
pseudacorus, Iris 9
ptarmica, Achillea 71
Purple Helebore 8
Purple Toadflax 7
Pyracantha sp. 90
pyrenaicum, Geranium 68, 77
quadrifolia, Paris 65
Ragged Robin 23
Ragwort 77, 79, 80
ramosum, Sparganium 71
Ranunculus 124
recta, Potentilla 12
Reedmace 26
repens, Agropyron 48
repens, Salix 42
reptans, Ajuga 124
robur × petraea, Quercus hybrid ... 92
robur, Quercus 92, 93
Rosebay Willow-herb ... 69, 70, 76, 79
rotundifolia, Campanula 77, 79
rotundifolia, Drosera 67
Round-headed Rampion 80
Salad Burnet 66, 78, 79
salicifolia, Spiraea 72
Salix 31, 112
Sainfoin 66
sanguinea, Cornus 79
sanguisorba, Poterium 18, 66, 78, 79, 80

PAGE

Saw-wort 75
saxifraga, Pimpinella 46, 78, 79
scabiosa, Centaurea 89
sceleratus, Ranunculus 71
scoparius, Sarothamnus 9
scorodonia, Teucrium 78
scutellata, Veronica 71
Sea Lavender 78
Senecio 89, 91
Service Tree 68, 78
setacea, Isolepis 71
siliquosus, Lotus 21
siliquosus, Tetragonolobus 21
Skullcap 72
Sloe 40
Sneezewort 71
Solanum 15
Sparganium 72
Spindle-tree 66, 79
spinosa, Prunus 40, 77
sphondylium, Heracleum 72
squarrosa (=conyza), Inula 65
Stachys 15
Sweet William 26
sylvatica, Stachys 72, 75
sylvestris, Angelica 71
sylvestris, Anthriscus 65
sylvestris, Lathyrus 63
sylvestris, Malus 66, 79
sylvestris, Malva 64
Tall Broomrape 70
tenerum, Phyteuma 80
tetrahit, Galeopsis 78
Tilia 112
tinctoria, Serratula 75
Tomato 95
Tragopogon spp. 89
tremula, Populus 9
tripolium, Aster 74
Typha 26
Ulmus 100, 101, 112
Upright Hedge-parsley 71
ursinum, Allium 35
Vaccinium 123
vaginatum, Eriophorum 36
Verbascum 65
veris, Primula 7, 70
verum, Galium 42
vesca, Fragaria 124
Viburnum 66
viciifolia, Onobrychis 66
virgaurea, Solidago 73, 78, 80
vitalba, Clematis 77
vitis-idaea, Vaccinium 37
vulgare, Cirsium 89
vulgare, Origanum 18, 65, 66, 79
vulgare, Polypodium 75
vulgare, Tanacetum 17, 42

PAGE
vulgaris, Artemisia 64, 77, 89, 90
vulgaris, Carlina 65
vulgaris, Polygala 66
vulgaris, Senecio 91
vulneraria, Anthyllis 66
Water Mint 72
Water Plantain 71
Wayfaring Tree 77
Wild Carrot 77, 78
Wild Mignonette 66
Wild Rose 78
Wood Sage 78
Wych Elm 40
Yellow Balsam 39
Yellow-wort 80

FUNGI

adusta, Russula 80
adustus, Polyporus 81
aeruginosa, Stropharia 80
aeruginosum, Chlorosplenium ... 7, 61
amethystina, Laccaria 80
amianthina, Lepiota 80
asterospora, Inocybe 80
atrata, Collybia 80
atropurpurea, Russula 80
aurantia, Otidea 81
aurantia, Peziza 79
betulinus, Polyporus 81
butyracea, Collybia 80
campanulatus, Panaeolus 80
candolleanum, Hypholoma 71
cerussata, Clitocybe 80
cervinus, Pluteus 80
chrysenteron, Boletus 71, 76, 81
cibarius, Cantharellus 80
cinerea, Clavaria 81
cinereus, Cantharellus 79
cinnamomeus, Cortinarius 80
clavipes, Clitocybe 80
coccineum, Hypoxylon 81
coccineus, Hygrophorus 80
conopilea, Psilocybe 80
cornucopioides, Craterellus 80
coronatus, Geaster 77
crispa, Helvella 79, 81
cristata, Lepiota 80
crustuliniforme, Hebeloma 80
cucumis, Naucoria 80
cyanoxantha, Russula 80
diatreta, Clitocybe 80
eburneus, Hygrophorus 80
edulis, Boletus 76
epiphyllus, Marasmius 80
emetica, Russula 80
expallens, Clitocybe 80
fasciculare, Hypholoma 80
fellea, Russula 80

PAGE
filopes, Mycena 80
fulva, Amanitopsis 76, 80
fuscipes, Collybia 71, 80
galericulata, Mycena 80
geophylla, Inocybe 80
giganteus, Polyporus 81
glycyosmus, Lactarius 80
gracilis, Psathyrella 80
grammopodium, Tricholoma 77
granulosa, Lepiota 79
grisea, Russula 80
hepatica, Fistulina 81
hispidus, Polyporus 81
hydrophilum, Hypholoma 80
hypnorum, Galera 80
inaequalis, Clavaria 81
incarnata, I. pyriodora var. 80
inclinata, Mycena 80
infundibuliformis, Clitocybe 80
involutus, Paxillus 80
ionides, Tricholoma 77
laccata, Laccaria 76, 80
lascivum, Tricholoma 80
leoninus, Pluteus 75
lucidum, Ganoderma 17
luteus, Boletus 76, 80
mellea, Armillaria 79, 80
merdaria, Stropharia 80
micaceus, Coprinus 80
muscaria, Amanita 76
multiformis, Cortinarius 76
nigricans, Russula 80
nudum, Tricholoma 80
ochroleuca, Russula 80
odora, Clitocybe 77
Parasol Mushroom 35
perlatum, Lycoperdon 81
peronatus, Marasmius 80
phyllophila, Clitocybe 80
piperatus, Lactarius 80
plicatilis, Coprinus 80
plumbeus, Lactarius 80
polygramma, Mycena 80
polymorpha, Xylaria 81
Polyporus 7, 61
procera, Lepiota 35
psittacinus, Hygrophorus 26
purpurascens, Epicoccum 26
pyriforme, Lycoperdon 81
pyriodora, Inocybe 80
radicata, Collybia 77, 80
robertsi, Cordiceps 9
rosea, Russula 80
rotula, Marasmius 72
rubescens, Amanita 76
rufus, Lactarius 76
sanguineus, Cortinarius 26
scaber, Boletus 76, 81

PAGE

scandens, Cortinarius 80
serifluus, Lactarius 80
semi-globata, Stropharia 80
silvicola, Psalliota 80
sinuosum, Hebeloma 77, 80
spadicea, Psilocybe 80
spectabilis, Pholiota 80
staurospora, Nolanea 80
stricta, Clavaria 75
subdulcis, Lactarius 80
terreum, Tricholoma 80
torminosus, Lactarius 80
torvus, Cortinarius 26
typhina, Epichloe 12, 71
typhinium, Epichloe 72
vaginata, Amanitopsis 80
variegatus, Boletus 76
versicolor, Polystictus 35, 79, 81
versipellis, Boletus 76
violaceus, Cortinarius 80
virgineus, Hygrophorus 26, 80
vulgaris, Acetabula 61, 66
xanthoderma, Psalliota 80

HEMIPTERA

adescendens, Lawana 29
angulatus, Blepharidopterus ... 100, 101, 102, 103 (fig. 1), 104, 110, 111, 112, 113
bigoti, Clovia 29
Blepharidopterus 100
brevicornis, Blepharidopterus ... 100, 102, 103 (fig. 1), 110, 111, 112, 113
Cimex 102
Deraeocoris 100
Elasmoscelis sp. 29
Exolygus (=Lygus) 100
fasciata, Pochazia 29
grahami, Amitrochates 29
grisescens, Poophilus 29
grossus, Ptyelus 29
imitator, M. marginalis, s.sp. xxxvi, 12
limbata, Phromnia 29
limbata, Ugada 29
Lygus (Exolygus) 100
Lygocoris (Neolygus) 100
maculata, Locris 29
marginalis, Micracanthia ... xxxvi, 12
mediana, Ricania 29
Neolygus (=Lygocoris) 100
rubens, Locris 29
saxatilis, Lygus 15
tunicatus, Pantillius 79
unipunctata, Cryptoflata 29

HYMENOPTERA

candidata, Empria 62
cyanea, Syntomaspis 92

PAGE

ephippium, Diospilus 13
longiventris, Cynips 92
pallicornis, Synergus 92
rosae, Eurytoma 92, 93
similis (=substituta), C. longiventris f. 93
substituta (similis), C. longiventris f. 93

LEPIDOPTERA

abbreviata, Eupithecia 60
absinthii, Cucullia 21, 22, 27, 38, 77
acanthodactyla, Amblyptilia 15
achaemenes, Charaxes 33
achatinella, Nyctegretis 42
adusta, Eumichtis 24
adustata, Ligida 79
advena (opima), Orthosia 32
advenaria, Cepphis 24, 67
aegeria, Pararge ... 35, 60, 64, 68, 70, 71, 73, 78, 79
aeneana, Euxanthis 77, 79, 80
aeratellum, Augasma 2
aerugula (=trituberculatus), Celama 26, 42
aethiops, A. monoglypha ab. 19
aethiops, Erebia 40
affinis, Cosmia 97, 98
agathina, Amathes 38
aglaia, Argynnis 20, 40
agnorista, Abrostola 33
Agrias 40
ahenella, Hypochalcia 27
alba, A. urticae ab. 41
alba, L. coridon ab. 42
alba + major, L. coridon ab. ... 22, Pl. I
alba + radiata, L. coridon ab. 22
albimacula, Hadena 15, 24, 26, 42
albipuncta, Leucania 39
albipunctata, Cosymbia 62
albitarsella, Coleophora 65
alboradiata, A. welwitschii f. 45
albovenosa, Simyra 30
albula, Nola 15, 20, 42
albulata, Asthena 68
alburnella, Telphusa 2
alchemillata, Perizoma 78
alchimiella, Gracillaria 76
alciphron, Heodes 40
algae, Nonagria 26, 64
allionella (=aureatella), Micropteryx 123
alpinellus, Platytes 15, 28, 42
alsines, Caradrina 21
alstroemeriana, Depressaria 64
alternaria, Semiothisa 28
alveus, Pyrgus 21
amata, Calothysanis 77
amathusia, Boloria 40

PAGE
ambigua, Caradrina 18, 22, 40
ambiguella, Clysia 28
angelicella, Depressaria 68, 73
angustalis, Synaphe 15
angustana, Euxanthis 76
angustella, Alispa 77
angusticolella, Tischeria 78
anomala, Stilbia 22
anthyllidella, Stomopteryx 66
anti-atrescens + ultra-alborcrenata +metallica, L coridon ab. 43
anticaeca, L. coridon ab. 43
anticentrijuncta, L. coridon ab. ..,... 43
antidiscoelongata, L. coridon ab. 28, 37
antiexcessa, M. jurtina ab. 24
antilacticolor, L. phlaeas ab. 28
antiopa, Nymphalis 19, 40
antiquana, Endothenia 15, 27
antiqua, Orgyia 79
aphenges, A. caja ab. 40
aphirape (=eunomia), Proclossiana 21
apollo, Parnassius 40
applana, Depressaria 65
aprilina, Griposia 41
arcania, Coenonympha 35
archesia, Precis 25
arcuatella, Tinea 36
arcuella, Argyroploce 68
areola, Xylocampa 39, 45, 60
arete, A. hyperantus ab. 36
argentella, Elachista 65
argus, Plebejus 3, 44
arion, Maculinea 11, 33, 40, 44
aristodemus, Papilio 33
armigera, Heliothis 30, 48
artemesiella, Coleophora 74
aruncella (seppella, podevinella), Micropteryx ... 122, 123, Pl. 8, figs. 4 and 5
aspersana, Peronea 27
aspidiscana, Eucosma 68
assimilis, Apamea 36
assimilis, A. exulis s.sp. 33
asteris, Cucullia 20, 22, 73, 74
astramenisca, A. caja ab. 40
atalanta, Vanessa 71, 75
athalia, Melitaea 14, 21, 40, 87
atomaria, Ematurga 6
atromella (scopariella), Depressaria 36
atrescens + suffusa + punctata, L. coridon ab 22
atriplicella, Phthorimaea 27, 64
aurago, Tiliacea 21, 41, 79
aurantia, G. micacea, ab. 38
aurantiana, Pammene ... 7, 34, 37, 45, 48
aurantiaria, Erannis 46
aurantiella, Depressaria 15

PAGE
aureatella, Micropteryx ... 67, 122, 123, Pl. 8, fig. 3
aureoflavescens, E. cardamines ab. .. 85
aurinia, Euphydryas ... 20, 23, 24, 26, 39
auroguttella, Gracillaria 66, 77
australis, Aporophyla 28, 30
autumnaria, Ennomos 10, 22
avellana, Apoda 45
aversata, Sterrha 32
badiaria, C. puppillaria ab. 19
badiella, Depressaria 15, 27, 42
baliodactyla, Alucita 65, 66
barbalis, Herminia 68, 76
beatricella, Lozopera 64
bellargus, Lysandra 39, 44, 70
betulae, Phycita 27
betulae, Thecla 46
betularia, Biston 31, 76
betulicola, Gracillaria 74, 77
bicolorata (=rubiginata), Plemyria 30
bicoloria, Leucodonta 9, 30
bicuspis, Harpyia 28, 39
bidentata, Gonodontis ... 19, 20, 48, 79
bifaciata, Perizoma 77
bi-I-nigrum, L. coridon ab. 32
bilineata, Euphyia 26
bilunana, Eucosma 68
bilunaria, Selenia 15, 35
bimaculosa, Meganephria 30
binaria, Drepana 78
bipunctata, L. phlaeas ab. 28
bipunctatus, Charaxes 33
bipunctella, Ethmia 15, 42
bipunctidactyla, Stenoptilia 68
bipunctosa, Depressaria 65
biriviata, Xanthorhoë 22, 29, 36
bistortata, Ectropis 6, 31
bistriga, Cryptoblabes 79
blomeri, Discoloxia 25, 30
boeticus, Lampides 16
boleti, Scardia 79
bondii (=morrisii), Arenostola 44
boscana, Acleris (Peronea) 75, 77
bractea, Plusia 26
brassicae, Mamestra 39
brassicae, Pieris 65, 71, 73
brevilinea, Arenstola 30
britanniodactylus, Capperia 27
brumata, Operphotera 46
brunnescens, L. phlaeas ab. 28
brunnichella, Stephensia 66
bryoniae, P. napi ab. 21
bucephala, Phalera 76
buoliana, Evetria 61, 66, 69
buschmanni, E. cardamines ab. 86
caeca, L. bellargus ab. 39
caeca, L. coridon ab. 38, 39, 44
caecimaculana, Eucosma 27

PAGE

caernensis, P. argus f. 44
caerulea, L. coridon ab. 32, 43
caeruleopunctata, L. phlaeas ab. ... 28
caesia, Hadena 38
caesiata, Entephria 19, 28
caesiella, Swammerdamia 27
caja, Arctia ... 15, 31, 33, 35, 36, 40, 48, 64
c-album, Polygonia ... 1, 32, 71, 72, 73, 79
caliginosa, Acosmetia 75
calodactyla, Platyptilia 68
calthella, Micropteryx ...... 122, 124, Pl. 8, fig. 6
cambrica, Venusia 30
camilla, Limenitis 41, 71, 72
caniola? Eilema 8
captiuncula, Phothedes 24, 28, 39
capucina, Lophopteryx 79
cardamines, Euchloë (Anthocharis) 4, 5, 6, 41, 65, 82, 83, 84, Pl. 5
cardui, Vanessa 18
carmelita, Odontosia 6, 44
carphodactylus, Oidaematophorus 33, 65
carpinata, Trichopteryx (Nothopteryx) 36, 60
castanea (neglecta), Amathes 25, 28, 38
castigata, Eupithecia 36, 38
catarryta, A. caja ab. 40
caulotosticta, E. cardamines ab. ... 87
cenea, P. dardanus race 25
centaureata, Eupithecia 35
centifoliella, Nepticula 79
centonalis (=trituberculatus), Celama 26, 42
ceronus, L. bellargus ab. 39, 42
cerussellus, Platytes 27
cervinus, M. jurtina ab. 36
ceto, Erebia 40
Charaxes 41
chenopodiata (limitata), Ortholitha . 36
chi, Antitype 19, 34
Chinese Oak Silkmoth 31
chiron, Eumedonia 41
chlorosata, Lithina 38, 68
christiernana (citrinalis), Hypercallia 17, 69
chrysanthemi, Z. filipendulae ab. ... 22
chryseis (hippothoë), Heodes 41
chrysitis, Plusia 95
chrysolepidella (kaltenbachii), Eriocrania ... 118, 119, Pl. 8, fig. 13
chryson (orichalcea), Plusia ..... 94, Pl. 7, figs. 3 a, b, c
ciliella, Depressaria 35, 42, 71
cinerella, Acompsia 77
ciniflonella, Depressaria 36
cinxia, Melitaea 40
circellaris, Argrochola 5
citrata, Dysstroma 19

PAGE

citrinalis (=christiernana), Hypercallia 17
citronea, E. cardamines ab. 85
clathrata, Chiasmia 25, 27, 64, 72
clavaria, Larentia 27, 64
clavis, Agrotis 45
cleodoxa, A. cydippe ab. 33
clorana, Earias 15, 22, 24, 28
clypeiferella, Coleophora 46
cnicana, Phalonia 68
c-nigrum, Amathes 20, 70
Coleophora sp. 61
Colias 32, 33
comes, Noctua (Triphaena) ... 18, 34, 38
comitata, Pelurga 77
comma, Hesperia ....Pl. I, 32, 43
commaculo, M. jurtina ab. 43
communana, Eucosma 71
complanella, Tischeria 78, 79
compta, Hadena 20, 25, 26
confluens, Z. filipendulae ab. 24
confluentiae, L. coridon ab. 43
confluentiae, P. icarus ab. 43
confusalis, Celama 38
congressariella, Nothris 34, 36
conicolana, Laspeyresia 67
conjuncta, P. dominula ab. 33
consimilana, Clepsis (unifasciatus Tortrix) 14, 15
consociella, Euzophera 69
conspersa, Hadena ... 24, 25, 26, 31, 34, 38, 44
contaminana, Peronea (=rhombana, Acleris) 79
conturbatella, Mompha 64
convolvuli, Herse ... 17, 19, 20, 22, 30, 34, 40
coprodactyla, Stenoptilia 27
coridon, Lysandra ... 22, 24, Pl. I, 32, 37, 39, 43, 44, 71, 78
corticana, Argyroploce 69
corylata, Electrophaës 68
coryli, Colocasia 6, 30
costaenigrata (nigroconjuncta, umbratilis, williamsi), E. cardamines ab 87
costalis, Pyralis (Hypsopygia) 31
costana, Clepsis 64
costosa, Depressaria 27
craccae, Lygephila 30
cramerella, Lithocolletis 28
crassipuncta, L. coridon ab. 32
crataegi, Aporia 35, 40
crataegi, Trichiura 19
crenana, Eucosma 35
cretacella, Homoeosoma 42
cribrella, Myelois 77
cribrumalis, Zanclognatha 20, 30

PAGE

crocealis, Psammotis (Microstega) 66, 71
croceus (edusa), Colias 18, 42, 44
crocicapitella, Monopis 15, 42
cucubali, Hadena 27
cuculata, Euphyia 28
cucullatella, Nola 26
cucullina, Lophopteryx 17
culiciformis, Aegeria 69
cursoria, Euxoa 24, 28, 30, 34
cydippe, Argynnis 33, 40, 71
cytisella, Paltodora 67
dahlii, Diarsia 28
dardanus, Papilio 25
decolorata, E. cardamines ab. ... 85, Pl. 5, fig. 1
decolorella, Blastobasis 42
defoliaria, Erannis 24
degeerella, Namotois 68
delius (=phoebus-sacerdos), Parnassius 41
denotata (=pimpinellata), Eupithecia 22
dentalis, Cynaeda 14
deplana, Eilema 71
Depressaria 65
derivalis, Paracolax 21
detersa, E. cardamines ab. 85
dia, Boloria 40
dictynna, Melitaea 40
didymata, Colostygia 3, 25
diffinis, Cosmia 97, 98
diffinis, Gelechia 27, 76
dilutata, Oporinia 46, 64
dinodes, Porinia 9
diocletianus, Euploea 41
dirteana, Euthalia dirtea s.sp 41
discoelongata, L. coridon ab. 32
dispila, E. cardamines ab. 86
distans, Oxyptilus 42
ditta, C. caja ab. 40
dodonaea (trimacula), Drymonia 24, 45
dodoneata, Eupithecia 38
dominula, Panaxia 33
dorilis, Heodes 40
dromedarius, Notodonta 24, 76
dubitata, Triphosia 24
dumerilii, Luperina 2
duplaris, Tethea 75
eburnata, Sterrha 23, 25, 30
edusa (=croceus), Colias 42
electo, Colias 32
elinguaria, Crocallis 36
elongella, Gracillaria 75
elymi, Arenostola 20, 28, 29
emberizaepennella, Lithocolletis 71
Emperor Moth 61
eos, A. ilia var. 35
epiphron, Erebia 41

PAGE

epomidion, Apamea 10
erate, Colias 32
ericetana, Endothenia 34
ericinella, Aristotelia 70
Eriocrania 116 (fig. 1), 117
Eriocraniidae 115, 124
eris, A. niobe var. 40
erxlebella, Roeslerstammia 64
Euchloë 4
eunomia (aphirape), Proclossiana ... 21
euphrosyne, Argynnis (Clossiana) ... 33, 39, 40, 68
Euploea 23
European Pine Lappet 31
eurytheme, Colias 32
exanthemata, Cabera 35
excessa, M. tithonus ab. 23
exclamationis, Agrotis ... 25, 27, 31, 33, 35, Pl. 2
exigua, Laphygma ... 11, 21, 22, 28, 34
exotica, A. caja ab. 40
expallidana, Eucosma 27
extrema, Arenostola 12, 14, 27
fagana (prasinana), Bena 79, 98
fagi, Stauropus 10, 45
faginella, Lithocolletis 28
falcataria, Drepana 69
falconipennella, Gracillaria 75
farinalis, Pyralis 27
fascelina, Dasychira 42
fasciana (pygarga), Jaspidea 26, 68
fasciaria (prosapiaria), Ellopia ... 12, 27, 60, 62, 69
fasciella, Nemotois 64
fastuosella (=subpurpurella), Mnemonica 120, 121, Pl. 8, fig. 8
favillaceana (=vulgana), Capua 67
ferrugana, Acleris (Peronea) ... 62, 76, 77
festiva, Diarsia 34
festucae, Plusia 22, 39
fibrosa, C. leucostigma f. 44
fibulella, Adela 66, 68
filigrammaria, Oporinia 3
filipendulae, Zygaena 22, 24, 70
fimbrialis, Thalera 13, 17
fimbriata, Eriocrania 118, 119, Pl. 8, fig. 5
firmata, Thera 45
fissurana, Peronea (=tripunctulana, Acleris) 76
flammea, Meliana 30
flammea, Panolis 3
flammealis, Endotricha 15
flavago, Gortyna 30
flavescens, L. coridon, ab. 32
flavicincta, Antitype 25
flavicinctata, Entephria 28
flavicornis, Achlya 1, 6, 64

PAGE

flavido-virescens, E. cardamines ab. 85
flavirosea, A. caja ab. 40
flexula, Laspeyria 20, 79
fluctuata, Xanthorhoë 19, 28, 73
foenella, Eucosma 34, 64
forficellus, Schoenobius 27
forskåleana, Tortrix 66
fowleri, L. coridon 43
fowlerimargino, L. coridon ab. 43
frangulella, Bucculatrix 79, 80
fraxini, Catocala 26, 35
frischella, Coleophora 71
fuciformis, Hemaris 20
fugax, Rhodinia 9
fuliginaria, Parascotia ... 13, 33, 60, 62, 66, 67
fuliginosa, Phragmatobia 6
fulvimitrella, Tinea 68
funebrana, Laspeyresia 15, 42
funebris, Anania 68, 73
furcata, Hydriomena 27, 28, 37, 71
furvescens, L. bellargus ab. 37
fusca, Dioryctria 69
fuscalis, Perinephela 15
fuscalis, Pyrausta 9
fuscorhabda, A. caja ab. 40
fusconebulosus, Hepialus 36
fuscovenosa, Sterrha 70
fuscoviridella, Glyphipterix 68
galactodactyla, Alucita 65, 66
galathea, Agapetes 20, 43, 74
galiata, Epirrhoë 27
gallicus, H. fusconebulosa ab. 36
gamma, Plusia ... 8, 13, 17, 21, 29, 31, Pl. 2, 45, 46, 47, 75, 95
geniculella, Lithocolletis 75, 77
genistella, Nephopterix 27
geoffrella, Oecophora 68
gerronella, Brachmia 15, 42
gigantellus, Schoenobius 15, 42
gilvago, Cirrhia 20
glareosa, Amathes 19, 29
glaucata, Cilix 78, 79
glaucinella, Argyresthia 34
gleichenella, Elachista 34
glitzella, Coleophora 37
globulariae, Procris 11
glomerata + confluentiae, L. Coridon ab. 37
glyphica, Ectype 32, 70
goante, Erebia 40
Golden Plusia 96
gonodactyla, Platyptilia 64
gorganus, P. machaon s.sp. 40
gothica, Orthosia 6, 26, 31, 65
gothicina, O. gothica ab. 6
gracilis, Orthosia 4, 6, 24, 44, 62
graminis, Cerapteryx 25, 31

PAGE

grisea, L. coridon ab. 43
gryphipennella, Coleophora 68
Gulf Fritillary 31
hamana, Euxanthis 15
hamellus, Crambus 35, 74, 75
hastata, Rheumaptera (Eulype) 68
hastiana, Acleris (Peronea) 73
haworthana, Glyphipterix 36
haworthii, Celaena 28, 38
hebenstreitella (sorbiana), Archips (Cacoecia) 67
helvola, Anchoscelis 44
hemerobiella, Coleophora 66, 79
Heodes 33
hepariella, Zelleria 35
hepatica, Polia (tincta, Aplecta) 29
Hepialidae 115
heringella, Eucosma 74
heroldella, Swammerdamia 62, 68
hiera (=petropolitana), Pararge 21, 41
hippocoonoides, P. dardanus race .. 25
hippothoë (=chryseis), Heodes 41
hippothoë, Palaeochrysophanus 21
hirtaria, Lycia 2, 24, 35
hostilis, Dioryctria 15, 42
hucherardi, Hydraecia ... 21, 22, 28, 29
humuli, Hepialus 31
hyale, Colias 21
hyalinalis, Microstega 71
hyperantus, Aphantopus ... 24, Pl. 2, 39, 41, 70, 71, 73, 83, 84
hypericana, Lathronympha 67
hypericella (liturella), Depressaria 66
icarus, Polyommatus 43, 68, 70, 73
icteritia, Cirrhia 37, 41
ilia, Apatura 35
ilicifolia, Epicnaptera 9
illigerella, Epermenia 72
imitaria, Scopula 30
immaculata, E. cardamines ab. ... 86, Pl. 5, fig, 2
impar, Cryphia 12
impura, Leucania 38
inachus, Kallima 35
inaequalis, L. coridon ab. 32
incerta, Orthosia 1, 31, 45, 98
incertana, Cnephasia 68
inconspicuella (=semipurpurella) Eriocrania 118, Pl. 8, fig. 10
inframarginata, L. coridon ab. 28, 37, 43
infraradiata, L. phlaeas ab. 28
infrasemisyngrapha, L. coridon ab. 43
inquinatellus, Crambus 76
intermediaria, E. fasciaria f. 12, 27
intimella, Nepticula 42
inturbata, Eupithecia 22
ione, Colotis 1

PAGE
io, Nymphalis 60, 70
iota, Plusia 30
ipsilon, Agrotis 39
irriguata, Eupithecia 25
irrorella, Setina 70
jacksoni, Hypolycaena 45
jacobaeae, Callimorpha 20, 73
jalone, C. ione d.s.f. 1
japonica, Dictyoploca 9
juniperata, Thera 78, 79
Junonia 34
junoniella, Lithocolletis 37
jurtina, Maniola ... 24, 39, 41, 42, 43, **44**, 68, 70, 71
kaltenbachii (=chrysolepidella), Eriocrania 119
kleemannella, Lithocolletis 2, 64
kutokovi, E. cardamines ab. ... 87, Pl. 5, fig. 3
lacertinaria, Drepana 77
lactearia, Iodis 68, 70
lacticolor, L. phlaeas ab. 28
lacunana, Argyroploce 67, 68
laetana, Ancylis 68
lambdella, Batia 15, 27, 36, 42
lamprogenys, A. caja ab. 40
lancealis, Perinephela 68, 78
lanceolana, Bactra 68
lanceolata, A. hyperantus ab. ... 24, 39, 41
lantanella, Lithocolletis 66
lapidata, Coenocalpe 45
lapidea (=leutieri), Lithophane ... 18, 23, 28, 30, 33, 38, 45
lapidella, Luffia 60
lathonia, Issoria 21
latifasciana, Argyrotoza (schalleriana Peronea) 77
latiorana, Eucosma 72
latiora-postquadriexcessa, C. pamphilus ab. 24
latomarginata, L. phlaeas ab. 28
latruncula, Procus 34
lautella, Lithocolletis 2
lavendula-suffusa, L. coridon ab. 43
lavendula + suffusa + marginata, L. coridon ab. 43
leautieri (lapidea), Lithophane ... 18, 23, 27, 28, 30, 33, 38, 45, 46
lepida, Hadena 26, 31
leporina, Apatele 69
Leucania 33
leucomelanella, Phthorimaea 15, 27, 42
leucorhabda, A. caja ab. 40
leucostigma, Celaena 30, 36
lichenaria, Cleorodes 27
lichenea, Eumichtis 28, 34, 38
ligea, Erebia 40
lignea, Blastobasis 77
limitata (=chenopodiata), Ortholitha 36
limoniella, Goniodoma 77
linariata, Eupithecia 27
lineata, Siona 25
lineolea, Coleophora 64
literosa, Procus 23
Lithocolletis 78
littoralis, Leucania 26, 28
litura, Anchoscelis 79
liturella (=hypericella), Depressaria 60
lobarzewskii (prunivorana), Laspeyresia 18, 26
loeflingiana, Aleimma (Tortrix) ... 67, 71
longana, Cnephasia 27
lonicerae, Zygaena 24
loreyi, Leucania 37
lubricipeda, Spilosoma ... 15, 20, Pl. I, 31, 34, 36, 39
lucens, Hydraecia 20
lucens? Hydraecia 28
lucernea, Ammogrotis 31, 45
lucidella, Aristotelia 15
lucina, Hamearis 68, 70
lucipara, Euplexia 20
luctuata, Euphyia ... 21, 29, 33, 68
lunaextensa, L. coridon ab. 43
lunaria, Selenia 6
lundana, Ancylis 64, 72
lunigera, A. trux s.sp. ... 15, 16, 27, 34, 38
lunosa, Omphaloscelis 25
lunula, Calophasia ... 15, 26, 29, 42, 44
lutea, Spilosoma 15, 34
lutealis, Hapalia 71
luteolata, Opisthograptis 30, 45
lutosa, Rhizedra 30
lutulenta, Aporophyla 44
lychnitis, Cucullia 25
machaon, Papilio 87
macularia, Pseudopanthera ... 67, 68
maculipennis, Plutella 76
maculosana, Phtheocroa 67, 79
maera, Pararge 40
magnipuncta, L. phlaeas ab. 28
maia, Gynanisa 46
major, L. coridon ab.—see alba
major, L. phlaeas ab. 28
malvae, Pyrgus 24, 67, 68, 70
mansuetella, Micropteryx ... 122, 123, Pl. 8, fig. 2
manto, Erebia 21
margaritata, Campaea 79
marginata, L. coridon ab. 43
marginata, Lomaspilis 68
marginella, Dichomeris 70
marginepunctata, Scopula 22, 39
margo-striata, A. selene ab. 43
margo-transformis, C. pamphilus ab. 43

PAGE

maritima, Chilodes 28
maritima, Heliothis 33
marmorana, E. crenana var. 35
marmorea, Euzophera 14, 27, 42
marphisa, A. selene ab. 23
masseyi, P. argus f. 44
medusa, Erebia 21
megacephala, Apatele 26
megera, Pararge 24, 65, 68, 73
megerlella, Elachista 34
melanolimbata, A. caja ab. 40
melanotica, C. coryli f. 45
Melitaea 47
mellinata, Lygris 25
mesomella, Cybosia 26, 68
mespilella, Lithocolletis 78
messingiella, Eidophasia 42, 64
metallica, L. coridon ab. 43
meticulosa, Phlogophora 4, 41
mi, Euchlidimera 68, 70
miata, Chloroclysta 45
micacea, Gortyna (Hydraecia) ... 27, 31, 38
micana, Argyroploce 30
Micropterygidae 115, 121, 124
Micropterygina 115
Micropteryx 122
millefoliata, Eupithecia 15, 22, 99
minima, Petilampa 30
minimella, Nemotois 72
minoides, Z. trifolii ab. 29
minor, L. phlaeas ab. 28
mitterbacheriana, Ancylis 68
Mnemonica .... 116 (fig. 2), 117, 120
molesta, Laspeyresia (Ernarmonia) 16, 39
Monarch 2
moneta, Polychrisia ... 96, Pl. 7, figs. 4 a, b, c
monilifera, Narycia 62
monoglypha, Apamea 19, 20, 28
montanata, Xanthorhoë 68
morosa, A. yamamai ab. 31
morrisii (bondii), Arenostola 44
mucronata, Ortholitha 30
mulinella, Gelechia 64
muralis, Cryphia 12
musculana, Syndemis (Tortrix) 67
musculosa, Oria 20, 29, 32
mygindana, Argyroploce 37
myllerana, Choreutis 17, 68, 72
myopaeformis, Aegeria 10
myrtilli, Anarta 62, 69, 76
nana, Hada 34
nanana, Eucosma 42
nanatella, Depressaria 65, 68
napi, Pieris ... 15, 22, 36, 44, 65, 68, 71, 73
natalensis, P. octavia w.s.f. 4
natalica, P. dardanus f. 25
nebulosa, Polia 20
neft, Parathyma 41
neglecta (=castanea), Amathes 38
neophanes, Euzophera 15, 27, 42
neurica, Nonagria 20
Ni moth 95
ni, Plusia ... 11, 31, 36, 95, Pl. 6, figs. 2 a, b, c
nigra, Aporophyla 44
nigra, A. urticae ab. 37
nigra, L. hirtaria ab. 35
nigricana, Laspeyresia 67
nigricans, Euxoa 28
nigrina, L. camilla ab. 41
nigrocaria, A. urticae ab. 37
nigroconjuncta (=costaenigrata), E. cardamines ab. 87
nigromaculana, Eucosma 27
nigropennalis, A. caja ab. 40
nigropunctata (strigilaria), Scopula 24
niobe, Argynnis 40
nitidella, Argyresthia 71
nocturnata, C. clathrata ab. 25
nodicolella, Mompha 1, 69
notha, Archiearis (Brephos) 6
nubeculosa, Brachionycha ... 6, 20, 30, 35
nubilalis, Anania 27, 64
nymphaeata, Nymphula 71
obductella, Nephopterix 42, 65, 67
obelisca, Euxoa 38
obeliscata, Thera 62
oblitella, Heterographis 36
obliterata, L. phlaeas ab. 28
obscura (=remissa), Apamea 68
obscurata, A. punctulata ab. 84
obscurata, Gnophos 30
obsoleta, Leucania 22, 30, 34
obsoleta, L. phlaeas ab. 28
obstipata, Nycterosia (Nyctosia) 21, 34
occulta, Eurois 20
ocellaris, Cirrhia 5, 30, 31, 45, 60
ochraceella, Mompha 35, 64
ochraceella, Myrmecozela 36
ochroleuca, Eremobia 20
ocnerostomella, Douglasia 28
octavia, Precis 4
ocularis, Tethea 42
oehlmanniella, Lampronia 67
oleracea, Diataraxia 34, 38
olivacea, A. chi ab. 19
olivaceosuffusa, A. caja ab. 40
olivata, Colostygia 70
omissella, Acrocercops 64
ononaria, Aplasta 15, 22, 42
onosmella, Coleophora 27
ophiogramma, Apamea 20, 29
opima (=advena), Orthosia 32

PAGE

Oporinia 3
orbona, Noctua (Triphaena) 25
orichalcea (=chryson), Plusia ... 94, Pl. 7, figs. 3 a, b, c
ornata, Scopula 30, 70
ornatella, Pempelia 71
or, Tethea 37
osta, A. caja ab. 40
ostrina, Eublemma 25
oxyacanthae, Allophyes ... 20, 60, 64, 65
oxydata, E. subfulvata ab. 99
palaemon, Carterocephalus 21, 40
paleacea, Enargia 30
palealis, Loxostege 77
paliscia, A. caja ab. 40
pallidactyla, Platyptilia 27, 71, 73
pallidula, L. coridon ab. 32
pallidus, M. jurtina ab. 37
paludis, Hydraecia 22
paludum, Trichoptilus 67
palumbella, Dioryctria 27
palustrella, Aristotelia 15, 27, 42
palustris, Hydrillula 22
pamphilus, Coenonympha ... 10, 24, 41, 42, 43, 44, 65, 67, 68, 69, 70, 71, 73, 75, 79
pandalis, Microstega 68
Pantoporia 35
paphia, Argynnis 40, 44, 71, 72, 73
Papilio 28
parallela, L. coridon ab. 22
parasitella, Tinea 67
parthenias, Archiearis (Brephos) ... 6
partimtransformis, C. pamphilus ab. 24
partimtransformis, L. coridon ab. ... 43
partimtransformis, M. jurtina ab. ... 43
parva, Eublemma 34
parvidactyla, Oxyptilus 71
parvipuncta, L. coridon ab. 37
pascuellus, Crambus 68, 69
pavonia, Saturnia 61
pedaria (=pilosaria), Phigalia ... 64, 65
pelasgis, Precis 25
pelodes, A. caja ab. 40
peltigera, Heliothis ... 3, 4, 6, 11, 20, 21, 30
penkleriana, Eucosma 74, 77
pennaria, Colotois 64, 65
pentapunctata, A. caja ab. 40
perlepidana, Laspeyresia 64, 66
perlucidalis, Pyrausta 8, 9, 11, 36
pernyi, Antheraea 31
persicariae, Melanchra ...... 20, 28, Pl. 2
petasitis, Gortyna (Hydraecia) 17, 21, 29
petropolitana (hiera), Pararge 21
pflugiana, Eucosma 68
phicomone, Colias 32
philoxenus, C. tullia s.sp. 39

PAGE

phlaeas, Lycaena ... Pl. I, 28, 70, 71, 72, 73, 76, 77
phoebus-sacerdos (delius), Parnassius 41
phragmitella, Limnoecia 64
pigra, Clostera 26
pilosaria (pedaria), Phigalia 64, 65
pimpinellata (denotata), Eupithecia 18, 22, 78, 79
pinastri, Hyloicus 10, 20, 69
pinguis, Euzophera 27
piniaria, Bupalus 84
pinicolana, Evetria 66
pini, Dendrolimus 31
pinivorana, Evetria 66, 69
pisi, Ceramica 27, 30
plagiata, Anaitis 65, 70
plagicolella, Nepticula 78
plebeiana, Crocidosema 18, 34, 36
plexippus, Danaus 2
plumbagana, Hemimene 64
plumbeolata, Eupithecia 22
plumigera, Ptilophora 46
podevinella (aruncella), Micropterix 123
poliographus, C. erate s.sp. 32
politana, Eulia 27
ponceanus, P. aristodemus s.sp. ... 33
populella, Anacampsis 27
populeti, Orthosia 6
populetorum, Gracillaria 42, 47
populi, Lathoe 76
populi, Limenitis 35
populi, Poecilocampa 46
porcellus, Deilephila 10
postcaeca, L. coridon ab. 32, 38, 43
post-excessa, C. pamphilus ab. 24
posticana, Evetria 61
post-sinis-transformis, L. coridon ab. 37
postvittana, Austrotortrix 8, 11
potatoria, Philudoria 41
potentillae, Coleophora 18, 78, 79
poterii, Nepticula 80
praecox, Actebia 28, 30
prasinana (=fagana), Bena 79, 98
pratellus, Crambus 68
Precis 34
Prepona 40
prieuri, Satyrus 34
procellata, Melanthia 24, 71, 77
profugella, Cataplectica 46, 78, 79
prosapiaria (=fasciaria), Ellopia ... 62
prosopia, A. caja ab. 40
protea, Dryobotodes 98
proximella, Telphusa 2, 69
pruinata, Pseudopterna 27
prunivorana (?=lobarzewskii), Laspeyresia 18, 26
prunaria, Angerona 35

PAGE

pseudathalia, A. athalia s.sp. 40
pseudobombycella, Talaeporia 27
pseudohecate, Colias 32
pterodactyla, Stenoptilia 73
pubicornis, Cochleophasia 35
pudibunda, Dasychira 8, 11, 22, 37
pudorina, Leucania 26
pulchrina, Plusia 30
pulla, Epichnopteryx 27, 68
pulla, L. coridon ab. 37
pumilata, Gymnoscelis 1, 2
punctaria, Cosymbia 35
punctata, L. coridon ab. 36
punctidactyla, Amblyptilia 17, 75
punctosa, Choreutis 17, 42
punctularia (=punctulata), Aethalura 4, 60, 62, 84
punctulata (punctularia), Aethalura 4, 60, 62, 84
pupillatanulla, M jurtina ab. 24
puppillaria, Cosymbia ..... xxxvi, 14, 17, 18, 30, 31, 33, 34, 37, 47
purpurana, Argyroploce 15, 27
purpurea, Depressaria 72
purpurella, Eriocrania ...... 118, 119, Pl. 8, fig. 9
puta, Agrotis 13, 22, 31, 38, 39, 76
putrescens, Leucania 39
pygarga (=fasciana), Jaspidia ... 26, 68
pygmaeola, Eilema 15, 26, 41, 42
pygmeana, Acrolepia 72, 74
pygmina, Arenostola 27, 44
pyralina, Cosmia ... 27, 97, 98, Pl. 6, figs. 1 a, b, c, d, e
pyrrhulipennella, Coleophora 62
quadra, Lithosia 13
quadrifasciata, Xanthorhoë 45
quadripunctata, L. coridon 32
quercifolia, Gastropacha 35, 74
quercifoliella, Lithocolletis 28
quercinaria, Ennomos 39
quercus, Lasiocampa 24, 38, 41
quintaerratica, L. phlaeas ab. 28
radiata, A. caja ab. 40
radiata, E. cardamines ab. ... 87, Pl. 5, fig. 5
radiata, L. coridon ab. 28
radiata, L. phlaeas ab. 28
radiatellus, Ypsolophus 76, 79
ramburialis, Diasemia 36, 38
rapae, Pieris ... 4, 15, 36, 60, 65, 68, 73, 76
raschkiella, Mompha 76, 79
ravida, Spaelotis 28
rectilinea, Hyppa 36
regiana, Pammene 27, 60
remissa (obscura), Apamea 68
remota, L. phlaeas ab. 28
repandata, Alcis (Cleora) 25, 30, 79
reticulata, Eustroma 25, 39
revayana, Sarrothripus 71
rhamni, Gonepteryx ... 1, 44, 60, 65, 73, 79
rheediana, Eucosma 65, 68
rhombana, Acleris (contaminana, Peronea) 79
rhomboidaria, Cleora 35, 38, 45
ricini, Philosamia 31
ridens, Polyploca 4, 37
ripae, Agrotis 26, 28, 29
roseticolana, Laspeyresia 77
roylei, Antheraea 31
ruberata, Hydriomena 25
rubescana, Eucosma 74
rubi, Callophrys .... Pl. 1, 36, 44
rubi, Macrothylacia 68, 70, 77, 79
rubidata, Euphyia 26
rubiginata (bicolorata), Plemyria ... 30
rubiginea, Dasycampa 18
rubiginosana, Eucosma 42
rubricollis, Atolmis 24, 30
rubricosa, Cerastis 3, 44
rufa, N. comes ab. 38
rufescens, Brachmia 71
ruficornis, Chaonia (Drymonia) ... 23, 70
rufillana, Laspeyresia 78
rufimaculana, E. crenana var. 35
sacraria, Rhodometra 11, 21, 33, 34
sagittifer, N. comes ab. 38
salicalis, Colobochyla 42, 68
salicis, Leucoma 28
salinellus, Crambus 42
salmonea, E. cardamines ab. 85
salopiella, Eriocrania ... 118, 119, Pl. 8, fig. 11
sangii, Eriocrania ...... 118, Pl. 8, fig. 14
sannio, Diacrisia 69, 70
salinellus, Crambus 14
satyrion, Coenonympha 40
scabiosella, Lithocolletis 78
Scarce Burnished Brass 94
schalleriana, Peronia (=latifasciana, Argyrotoza) 77
schepdaeli (=costaenigrata), E. cardamines ab. 87
schmidtii, L. phlaeas ab. 28
schrankella, Mompha 68, 70
schreberella, Lithocolletis 74
scirpicolana, Bactra 64
scitella, Leucoptera 35
scolopacina, Apamea 21
scopariella (=atomella), Depressaria 36
scopariella, Lithocolletis 42
scopoliana, Eucosma 71
scriptella, Telphusa 2
secalis, Apamea 20
segetum, Agrotis 38

PAGE

selene, Argynnis ... 23, 24, Pl. I, 41, 42, 43, 44, 68
semele, Eumenis 3, 15
semiargus, Cyaniris 21, 40
semicostella, Sophronia 15, 27, 42
semifowleri, L. coridon ab. 24, 43
semifowleri-margino, L. coridon ab. 36
seminigrina, L. camilla ab. 36
semipurpurella (inconspicuella), Eriocrania .... 118, Pl. 8, fig. 10
semirubella, Phycita 71
semisyngrapha, L. coridon ab. 37
semitestacella, Argyresthia 77
senectella, Mniophaga 42
sepella (=aruncella), Micropteryx .. 122
sequellus, Ypsolophus 66
sericealis, Rivula 68
sericiella, Heliozela 62
servillana, Laspeyresia 62
sesamus, P. octavius d.s.f. 4
similis, Euproctis 60, 77
sinapis, Leptidea 41, 82
siterata, Chloroclysta 45
smaragdaria, Thetidia (Euchloris) .. 74
smeathmanniana, Phalonia 64, 65
sobrina, Noctua (Triphaena) ... 20, 36
sobrinata, Eupithecia 36
solandriana, Eucosma 67
solidaginis, Lithomoia 19, 30
sorbiana (=hebenstreitella), Archips 67
sordens, Apamea 27, 33, 39
sparganella, Orthotaelia 72
sparganii, Nonagria 26
sparrmannella, Eriocrania ... 118, 120, Pl. 8, fig. 7
sparsata, Anticollix 28
sphinx, Brachionycha 25, 46
spilodactyla, Alucita 42
spinicolella, Lithocolletis 28
splendidella, Dioryctria 31
s-signatum, A. caja ab. 40
stabilis, Orthosia 31, 39, 98
stellatarum, Macroglossum 11
stigmatella, Gracillaria 75
stipella, Aristotelia 64
strabonaria, C. linearia ab. 2
straminalis, Evergestis 72
straminea, Euxanthis 77
strataria, Biston 1, 31
stratiotata, Nymphula 15, 27
striata, L. coridon ab. 39
striata + postcaeca, L. coridon ab. .. 22
striatella, Paltodora (=tanacella, Isophrictes) 17
strigilaria (=nigropunctata), Scopula 24
strigilis, Procus 33
strigillaria, Perconia 62, 69, 76
strigula, Nola 22

PAGE

stygne, Erebia 40
subfulvata, Eupithecia 99
subocellea, Thiotricha 18, 79
subpurpurella (fastuosella), Mnemonica ...... 120, 121, Pl. 8, fig. 8
subradiata, L. phlaeas ab. 28
subradiata + parvipuncta, L. phlaeas ab. 28
subrata, Parathyma nefte s.sp. 41
subsericeata, Sterrha 27
subtusa, Zenobia 25
subumbrata, Eupithecia 65
succedana (=ulicetana), Laspeyresia 62, 64, 76
suffusa, A. chi ab. 19
suffusa, L. coridon ab.—see atrescens
suffusa, L. phlaeas ab. 28, 30
sulphurella, Dasycera 62, 67
suppeliella, Gelechia 15, 27
susinella, Leucoptera 30
swammerdamella, Nemophora 60
sylvata, Abraxas 25
sylvestris, Thymelicus 71, 73
syringella, Gracillaria 66
taeniolella, Stomopteryx 66
tages, Erynnis .... Pl. II, 40, 43, 68
tanacetella, Isophrictis (striatella, Palvodora) 17, 42
temerata, Bapta 78
templi, Dasypolia 30, 35
tephradactylus, Oidaematophorus 71, 72
terminella, Mompha 75
ternata, Scopula 24
terrealis, Perinephela 73
tesserana, Phalonia 71
thalassina, Hadena 39
therinella, Coleophora 79
thrasonella, Glyphipterix 68
thunbergella, Micropteryx .... 122, Pl. 8, fig. 1
tigrina, A. caja ab. 40
tiliae, Mimas 7, 10, 20, 35
tincta, Aplecta (=hepatica, Polia) ... 29
Tineina 115
tithonus, Maniola 41, 73
tortricella, Tortricodes 67
transformis, C. pamphilus ab. 43
transformis, L. coridon ab. 32, 43
transformis, M. jurtina ab. 39
transversata, Philereme 24
transvestita, E. cardamines ab. 85
trapetzella, Trichophaga 27
trapezina, Cosmia 45, 97, 98
treitschkiella, Antispila 79
tremula, Pheosia 27
triangulum, Amathes 39
tridens, Apatele 74
trifasciella, Lithocolletis 28, 60, 78

PAGE
trifolii, Discestra (Hadena) 4, 77
trifolii, Lasiocampa 28, 31, 38
trifolii, Zygaena 29
trigeminata, Sterrha 68
trigemina (triplasia), Abrostola .. 22, 33
trimacula (=dodonaea), Drymonia 24, 45
tringipennella, Gracillaria 64, 66
tripartita (=triplasia), Abrostola 33, 45
triplasia (=trigemina), Abrostola 22, 33
triplasia (tripartita), Abrostola ... 33, 45
tripunctana, Eucosma 67, 68
tripunctulana, Acleris (fissurana Peronea) 76
tritici, Euxoa 28, 30, 38
trituberculatus (aerugula and centonalis), Celama 14, 26, 42
truncata, Dysstroma 29, 31, 37, 38
trux, Agrostis 33, 44
tubulosa, Talaeporia 62
tullia (tiphon), Coenonympha 3, 39, 40
tumidella, Acrobasis 42
turca, Mythimna 10, 22
turfosalis, Tholomiges 24, 27
typica, Naenia 29
typica-caudata, L. phlaeas ab. 28
uhagonis, S. prieuri f. 34
ulicetana (succedana), Laspeyresia 62, 64, 76
ultimella, Depressaria 42
ultramelaina, L. coridon ab. 22
ultrapunctata, L. coridon ab. ... 36, 43
ultraviridescens, L. coridon ab. 43
umbellana, Depressaria 69
umbratica, Cucullia 32
umbratilis (=costaenigrata), E. cardamines ab. 87
umbrifera, O. mucronata ab. 36
unangulata, Euphyia 24
uncula, Eustrotia 28
unguicella, Ancylis 69
unifasciana, Tortrix—see consimilana, Clepsis
unimaculella, Mnemonica 120, Pl. 8, fig. 12
unionalis, Palpita 17, 36
unipuncta, Leucania ... 22, 31, 33, 34, 37, 39, 48
urticae, Aglais ... 15, 28, 35, 37, 41, 42, 60, 70, 71, 73
urticae, Spilosoma 24, 28, 42
urticana, Argyroploce 68
ustomaculana, Eucosma 37
vacciniella, Coleophora 37
vaccinii, Conistra 48
vanillae, Dione 31
varia, Lycophotia 30, 34, 69
variata, Thera 76
variegana, Peronea 27

PAGE
vegetable caterpillar, N. Zealand ... 9
venata, Ochlodes 29, 68, 69, 70
verbasci, Cucullia 65
vespertaria, Epione 25
vestigialis, Agrotis 29
vetulata, Philereme 24
vetusta, Xylena 9, 26, 30
viburniana ? Tortrix 27
villica, Arctia .... 12, 24, Pl. II, 68
viminalis, Bombycia 45
virescens, Hepialus 9
viretata, Acasis 71
virgata, Mesotype 28, 41, 45
virgaureae, Heodes 46
viridana, Tortrix 67
viridata, Chlorissa 27, 42
viridella, Adela 62
viridescens, L. coridon ab. 43
vitisella, Coleophora 37
v-nigrum, P. icarus ab. 37
vorticella, Stomopteryx 66
vulgana (favillaceana), Capua 67
w-album, Strymonidia 40, 72
walsinghamana, Phalonia 36
wauaria, Itame 27
weaveri, Nepticula 37
welwitschii, Acraea 45
williamsi (=costanigrata), E. cardamines ab. .... 87, Pl. 5, fig. 6
xanthographa, Amathes 19
xylosteana, Archips (Cacoecia) 67
yamamai, Antheraea 31
ziczac, Notodonta 6
zoegana, Euxanthis 15
zonaria, Nyssia 45
zophodactyla, Stenoptilia 27, 76

MAMMALIA

araneus, Sorex 35
Common Shrew 35
Long-tailed Field Mouse 35
sylvaticus, Apodemus 35

MOLLUSCA

Achatina sp. 29
African Forest Snail 29

ODONATA

cancellatum, Orthetrum 69
grandis, Aeshna 7
nigrescens, Sympetrum 17
nigrifemur, Sympetrum 48
tristis, Anax 17

PHASMIDA

titan, Acrophylla 46

PAGE

REPTILIA

Adder 66
fragilis, Anguis 77
Lizard 63
Slow Worm 63, 77

SALTATORIA

aegyptium, Anacridium 1, 29
albifrons, Decticus 29
annulosus, Thisoicetrus 29
barbarus, Calliptamus 29
bimaculyatus, Gryllus 48
bolivari, D. lobata 29
capsitanus, Helioscirtus 28
cisti, Tmethis 28
coerulescens, Oedipoda 28
cognata, Pyrgomorpha 28
conica, Pyrgomarphus 28
curasius, Sphingonotus 28
gratiosa (=miniata), Oedipoda ... 5, 28
gregaria, Schistocera 29
hesperica, Acinipe 29
hispanicus, Grylullulus 48
italicus, Calliptamus 29

PAGE

lineatus, Stenobothrus 13
littoralis, Thisoicetrus 29
lobata, Dericorys 29
luteus, Sphingonotus 28
maroccanus, Dociostaurus 28
millieri, Dericorys 9
miniata (gratiosa), Oedipoda 5, 28
nasuata, Acridella 28
notabilis, Scintharista 29
octofasciatus, Sphingonotus 28
okbaensis, Calliptamus 29
pulchripennis, Tmethis 28
roeselii, Roeseliana 79
rufus, Gomphocerippus 80
squamiger, Mogoplistes 17, 48
tricinctus, Sphingonotus 28

TRICHOPTERA

pellucidus, Glyphotaelius 20
picicornis, Holocentropus 20
reducta, Lype 20

MISCELLANEOUS

Portuguese Man-o'-War Jellyfish 15

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are held regularly at the Society's Rooms, and include the well-known ANNUAL EXHIBITION, which takes place in October in the Libraries of The Royal Society and of the Geological Society of London at Burlington House, Piccadilly, by kind permission of those two Societies. Frequent Field Meetings are held at week-ends in the Summer. Visitors are welcome at all meetings. The current Programme Card can be had on application to the Secretary.

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Insects

PROCEEDINGS AND TRANSACTIONS

OF

THE SOUTH LONDON
Entomological and Natural History Society

World List abbreviation: *Proc. S. Lond. ent. nat. Hist. Soc.*

1958.

WITH NINE PLATES (two coloured) and
TWENTY-THREE TEXT FIGURES

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The South London Entomological and Natural History Society.

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Session 1959.

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PROCEEDINGS AND TRANSACTIONS
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CONTENTS

PAGE

Officers and Council, 1959 ... ... Inside front cover

List of Plates iii

Objects, etc., of the Society iv

Instructions to Exhibitors and Speakers v

Past Presidents vi

List of Members vii

Geographical List of Members xxvi

Council's Report for 1958 xxxv

Treasurer's Report for 1958 xxxix

Obituary—Rev. Canon T. G. Edwards xliv

Indoor Meetings 1

Annual Exhibition 18

Annual Meeting 50

President's Address 51

Field Meetings 65

Larvae of British Lepidoptera not figured by Buckler. G. M. Haggett 84

Experimental Variation in *Aricia agestis* Schiff. F. V. L. Jarvis 94

The Style of the House. F. D. Buck 104

Africa Revisited. Dr. C. G. M. de Worms 125

Book Reviews 132

Index 139

LIST OF PLATES

I. Rev. Canon T. G. Edwards ... ... to face page xliv

II. Annual Exhibition, 25th October 1958 ... to face page 20

III. Annual Exhibition, 25th October 1958 ... to face page 24

IV. Field Meetings, Pulborough, Sussex, and Wrotham, Kent ... ... to face page 69

V. Field Meetings, Oxshott, Surrey, and Betchworth, Surrey ... ... to face page 78

VI. Larvae of British Lepidoptera not figured by Buckler ... ... to face page 86

VII. Larvae of British Lepidoptera not figured by Buckler ... ... to face page 90

VIII. *Aricia agestis* Schiff. ... ... to face page 96

IX. *Aricia agestis* Schiff. ... ... to face page 100

THE SOUTH LONDON
Entomological and Natural History Society

PEPYS HOUSE, 14 ROCHESTER ROW, WESTMINSTER, LONDON, S.W.1

OBJECTS

The Society has for its objects the promotion and advancement of research in Biological Science, and its diffusion by means of meetings at the Society's Rooms for the reading of original papers, discussions and lectures, by public exhibitions, by field meetings, by the issue of publications, the formation of typical collections and of a library, and by such other means as the Council may from time to time determine.

MEETINGS

Indoor Meetings at Rochester Row are generally held twice monthly, on second and fourth Thursdays at 6.30 p.m. Field Meetings take place throughout the Summer.

SUBSCRIPTIONS

Entrance Fee, 7/6. Ordinary Members, £1 : 11 : 6; Country Members, £1 : 1 : 0 p.a.; all members under 21, 10/0 p.a. Life Membership, Twenty Guineas.

The Council invites the co-operation of all Naturalists, especially those who are willing to further the objects of the Society by reading papers and exhibiting specimens.

COLLECTIONS, etc.

The Society possesses representative collections of most orders of insects and an extensive library. These are available at all Ordinary Meetings. Members may borrow books at meetings or by post. Donations of suitable insects and books are much appreciated.

There is also a big collection of lantern slides, mainly of insects in all stages from which series may be borrowed. Microscopes are available for home use

COMMUNICATIONS

Should be addressed to the Hon. Secretary, B. GOATER, B.Sc., F.R.E.S., 71, Grant's Close, Mill Hill East, N.W.7.

INSTRUCTIONS TO EXHIBITORS

(These apply to *all* meetings, not only to the Annual Exhibition.)

Attention to the following points will greatly add to the scientific value of the exhibits and our Proceedings, besides assisting the Publication Committee in preparing the reports for publication, a task which, in the past, has involved a quite unjustifiable amount of labour and time.

LABELLING OF EXHIBITS.

Adequate labelling of all exhibits is essential; such labelling to include—

(a) *name and address of exhibitor,*
(b) *order and name* (generic and specific, with author of the specific name) *of each species,*
(c) *locality* (at least County or Country), or, in the case of bred specimens, the place of origin,
(d) *date* (at least the month and year) of capture or breeding (or, in the case of a series, first and last dates),
(e) *any other information of scientific interest*, such as "Gynandromorph", etc., relating to any particular specimen.

REPORT FOR PROCEEDINGS.

A report, including all the points mentioned above for labelling, and amplified to give short details of any special aberrations, gynandromorphs (e.g. left side male, right side female), or other points of interest, *must be handed to the Recorder when the exhibit is taken in (at the Annual Exhibition) or to the Editor (at Ordinary Meetings).*

> *Such report must be written or typed (preferably typed)* ON ONE SIDE OF THE PAPER ONLY, WITH A 2 INCH MARGIN ON THE LEFT SIDE, WITH *AT LEAST* DOUBLE SPACING BETWEEN LINES, in the form used for the record in the Proceedings.

Where the author of a specific name is not known, a blank space should be left for its insertion, but every endeavour should be made to furnish this in the first instance, to avoid misunderstandings.

INSTRUCTIONS TO SPEAKERS

Speakers wishing to submit papers for publication, after reading, should give them to the Editor at the end of the meeting or send them to him as soon as possible afterwards, for consideration by the Publication Committee of the Society.

Naturally, not *all* the papers read or talks given to the Society are suitable for publication in the Transactions of the Society, and the Council, acting through the Publications Committee, reserves the right to refuse those papers it considers unsuitable.

SMITHSONIAN INSTITUTION DEC 2 9 [illegible]

The relevant Bye-law (26) (d) states that "all papers read or announced at any meeting and accepted for publication in the Society's publications shall become the property of the Society, unless otherwise stipulated before the reading or announcement thereof".

The Society will be very pleased to receive papers for consideration that may be suitable for reading in title. These should be sent to the Editor.

PAST PRESIDENTS

1872-4	J. R. Wellman (dec.).
1875-6	A. B. Farn, F.E.S. (dec.)
1877	J. P. Barrett, F.E.S. (dec.).
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1916-17	Hy. J. Turner, F.E.S. (dec.).
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1943	R. J. Burton, L.D.S., R.C.S.Eng.
1944	Stanley N. A. Jacobs, S.B.St.J., F.R.E.S.
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1951	T. G. Howarth, B.E.M., F.R.E.S. F.Z.S.
1952	E. W. Classey, F.R.E.S.
1953	F. Stanley-Smith, F.R.E.S.
1954	Stanley N. A. Jacobs, S.B.St.J., F.R.E.S.
1955	F. D. Buck, A.M.I.Ptg.M., F.R.E.S.
1956	Lt.-Col. W. B. L. Manley, F.R.E.S.
1957	B. P. Moore, B.Sc., D.Phil., F.R.E.S.
1958	N. E. HICKIN, Ph.D., B.Sc., F.R.E.S.

LIST OF MEMBERS

(Revised to 15th June 1959)

Chief subjects of Study:—*b*, Botany; *bi*, Biology; *c*, Coleoptera; *cr*, Crustacea; *d*, Diptera; *ec. ent*, Economic Entomology; *ent*, Entomology, General; *e*, Exotic; *g*, Genetics; *hem*, Hemiptera; *hym*, Hymenoptera; *l*, Lepidoptera; *mi* Microscopy; *ml*, Micro-lepidoptera; *mo*, Mollusca; *n*, Neuroptera; *nat. hist*, Natural History; *nat. phot*, Nature Photography; *od*, Odonata; *oo*, Oology; *orn*, Ornithology; *orth*, Orthoptera; *r*, Reptiles, *rh*, Rhopalocera; *t*, Trichoptera; *z*, Zoology.

HONORARY MEMBERS.

Including Honorary Members appointed under Bye-law 10(a), (Hon.); and Special Life Members appointed under Bye-law 10(b), (S.L.).

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10. 1.1951.	10. 1.1951.	Hon.	Gifford, Walter S., R.F.D., No. 2, Greenwich, Connecticut, U.S.A. *l.*
12.12.1957.	1924.	Hon.	Grant, F. T., 45, Hastings Road, Maidstone, Kent. *l, c.*
1. 1.1950.	12.10.1899.	S.L.	Carr, Rev. F. M. B., M.A., L.TH., Martin's Close, Mudeford, Christchurch, Hants. *l, n.*
1. 1.1951.	25. 1.1900.	S.L.	Day, F. H., F.R.E.S., Blackwell Lodge West, Carlisle, Cumberland. *l, c.*
1. 1.1953.	1902.	S.L.	Hare, E. J., C.B.E., F.R.E.S., Harrow Place, Pinden, Dartford, Kent. *l.*
1. 1.1959.	1908.	S.L.	Riley, Capt. N. D., C.B.E., F.R.E.S., F.Z.S., 7, McKay Road, Wimbledon, London, S.W.20.

LIFE, ORDINARY, AND COUNTRY MEMBERS.

YEAR OF ELECTION.

1957 Agassiz, D. J. L., c/o "Farleigh", Woodland Way, Kingswood, Surrey. *l.*

1956 Akester, W. J., F.R.P.S., 1, Holland Court, Natal Road, Avondale, Salisbury, S. Rhodesia. *nat. phot.*

1956 Alford, D. V., 7, St. Martin's Approach, Ruislip, Middx. *l.*

1951 Allan, P. B. M., M.B.E., M.A., F.S.A., F.R.E.S., F.Z.S., No. 4, Windhill, Bishop's Stortford, Herts. *l.*

1950 Allen, Miss D. M., "Cedars", Furzedown College, Wellham Road, Tooting, London, S.W.17. *nat. hist.*

1943 Allen, Donald, F.R.P.S., F.R.S.A., F.R.E.S., 431, Streetsbrook Road, Solihull, Warwickshire. *hym, ent, l, nat. phot, mi.*

1951 Allen, Rev. P. V. M., 1, Flint Cottages, Tunstall, nr. Sittingbourne, Kent. *l.*

1956 Ansorge, Sir Eric, C.S.I., C.I.E., F.R.E.S., "Timbers", Walders Lane, Chalfont St. Peter, Bucks. *l, c.*

1953 Asahina, S., D.SC., Totsuka 3-chome, 123, Shinjuku-ku, **Tokyo,** Japan. *od.*

1956 Ashby, Miss F. A., 30, Shooters Hill Road, S.E.3. *c.*

1953 Ashby, G. J., F.R.E.S., *Council,* c/o Zoological Society of London, Regent's Park, London, N.W.8. *ent.*

1950 Ashwell, D. A., "Scolt", Parsonage Lane, Bishop's Stortford, Herts. *g, od, hym, nat. phot.*

1946 Astbury, C. F., c/o 69b, St. Helens Park Road, Hastings, Sussex. *l.*

1957 Aston, A. E., B.A., F.R.E.S., 1, Aysgarth Road, Dulwich Village, London, S.E.21. *l, d.*

1950 Atherley, Miss M., 43, Farley Road, Derby. *l.*

1934 Atkinson, J. L., No. 2, Gatcombe House, Littlehempston, Nr. Totnes, Devon. *l.*

1952 Bailey, Karl E. J., B.D.S. HON., 73, Botley Road, Oxford. *l.*

1952 Baker, B. R., B.SC., A.M.A., F.R.E.S., 71a, Berkeley Avenue, Reading. *l, t.*

1939 Baker, Major D. B., R.A.O.C., F.R.E.S., 67, Cheam Road, Ewell, Surrey. *l, c.*

1953 Baker, J. A., B.A., The Old Vicarage, Churt, Surrey. *l, t.*

1947 Balfour-Browne, Prof., W. A. F., M.A., F.R.S.E., F.R.E.S., F.L.S., Brocklehirst, Collin, Dumfries. *c.*

1942 Banner, John V., M.R.C.S., L.R.C.P., F.R.E.S., " Wykehurst," 41, Varndean Gardens, Brighton 6, Sussex. *l.*

1958 Barham, C. S., B.SC., 19, Westbury Road, Ipswich, Suffolk. *col.*

1953 Barton, Major B. C., O.B.E., Castle Mead, Highcliffe, Christchurch, Hants. *l.*

1948 Baxter, L. N., 16, Bective Road, Forest Gate, London, E.7. *l. breeding.*

1948 Baxter, R. N., 16, Bective Road, Forest Gate, London, E.7. *l. breeding.*

1933 Baynes, E. S. A., O.B.E., F.R.E.S., 2, Arkendale Road, Glenageary, Co. Dublin, Eire. *l.*

1954 Beaufoy, S., B.SC.(ENG.), A.M.I.E.E., F.R.P.S., F.R.E.S., 98, Tuddenham Road, Ipswich, Suffolk. *ent.*

1957 Beesley, W. N., M.SC., F.R.E.S., 26, The Grove, Addlestone, Weybridge, Surrey. *d.*

1949 Bell, C. L., F.R.E.S., 23, Harcourt Road, Redland, Bristol 6. *l.*

1947 Best, A. A., 131, Woodham Lane, New Haw, Weybridge, Surrey. *l.*

1956 Bird, H. W., Redclyffe, The Avenue, Walton Park, Clevedon, Surrey. *l.*

1949 Birkett, Neville L., M.A., M.B., B.CHIR. (CANTAB.), 3, Thorny Hills, Kendal, Westmorland. *l, c, d.*

1949 **Blathwayt**, C. S. H., M.A. (OXON), F.R.E.S., " Amalfi," 27, South Road, Weston-super-Mare, Somerset. *l.*
1948 **Blaxill**, A. D., " St. Marthas," Braiswick, Colchester, Essex. *l.*
1926 **Bliss**, A., " Golden Mist," Whitford, near Axminster, Devon. *l.*
1959 **Blunt**, W. H., 26, Partridge Road, Yardley, Birmingham, 26. *ent.*
1925 **Blyth**, S. F. P., 6, Hatherley Road, Winchester, Hants. *l.*
1948 **Bolingbroke and St. John, The Viscountess** (née **Frohawk**, Valezina), Essendene, Cavendish Road, Sutton, Surrey. *nat. hist, ent.*
1948 **Bolton**, E. L., Lyncombe, Stagbury Avenue, Chipstead, Surrey. *l.*
1948 **Bowater**, Lt.-Col. W., M.C., B.D.S., T.D., D.L., 41, Calthorpe Road, Edgbaston, Birmingham, 15. *l, heredity.*
1944 **Bowden**, S. R., B.SC., A.R.C.S., F.R.E.S., 53, Crouch Hall Lane, Redbourn, Herts. *l, g.*
1946 **Boyce**, B., 16, Highland Road, Chichester, Sussex. *l.*
1948 **Boyes**, J. D. C., B.SC., A.R.I.C., A.R.P.S., Wimborne, Millfields, Nantwich, Cheshire. *l.*
1946 **Bradley**, J. D., F.R.E.S., *Council*, 53, Osterley Road, Isleworth, Middx. *l.*
1947 **Bretherton**, R. F., C.B., M.A., F.R.E.S., Ottershaw Cottage, Ottershaw, Surrey. *l.*
1933 **Brett**, G. A., B.SC., A.R.C.S., D.I.C., F.R.E.S., 2, Claygate Lane, Hinchley Wood, Esher, Surrey. *ent.*
1958 **Bridges**, Lt.-Col. H. C., c/o Grindleys Bank, 54, Parliament Street, S.W.1, and Wychlingover, Westwell, Ashford, Kent. *l.*
1940 **Britten**, H., M.M., F.R.H.S., F.INST.P.A., "Newholme," 21, Toller's Lane, Old Coulsdon, Surrey. *ent* (*Chalcididae*).
1930 **Brooke**, Miss W. M. A., F.L.S., Greenglade, Malvern Road, Liss, Hants. *ec, ent, b, marine life.*
1954 **Brown**, F. C., F.Z.S., 6, Osmond Gardens, Wallington, Surrey. *Giant Silk Moths.*
1952 **Brush**, H. J., "Larkspur", West Farm Close, Ashtead, Surrey. *ent.*
1952 **Bryce**, D., The Bungalow, Cliffe, Gt. Harwood, Blackburn, Lancs. *l, dip.*
1936 **Buck**, F. D., A.M.I.PTG.M., F.R.E.S., *Hon. Editor*, 36, Besant Court, Newington Green Road, London, N.1. *c.*
1955 **Buckler**, H. A., Sutton Bassett, Market Harborough, Leics. *l, ml.*
1958 **Burgess**, Gp. Capt. L. W., B.A., "Knoleforth", 1, Brittons Cottages, North Weirs, Brockenhurst, Hants. *l.*
1946 **Burkhardt**, Col. V. R., late R.A., D.S.O., O.B.E., 86, Main Street. Stanley, Hong Kong. *l.*
1944 **Burns**, B. S., 2, Mead Way, Fareham, Hants. *l.*

1948 Burton, P. J., L.D.S., R.C.S.ENG., F.R.E.S., "Paysanne," Godshill-wood, near Fordingbridge, Hants. *l.*

1938 Burton, R. J., L.D.S., R.C.S.ENG., Dinky Cottage, 4, Stanway Road, Stanton, nr. Broadway, Worcs. *l.*

1947 Busbridge, W. E., Firwood, 4, Mount Harry Road, Sevenoaks. Kent. *l.*

1957 Bush, D. J. B., 20, Brockenhurst Road, Addiscombe, Surrey. *l.*

1953 Butterfield, A. W., 124, Ashville Road, Leytonstone, London. E.11. *l.*

1951 Byers, F. W., 59, Gurney Court Road, St. Albans, Herts. *l.*

1953 Cadbury, Mrs. Betty, Beaconswood, Rednal, nr. Birmingham. *l.*

1948 Calderara, P., A.M.I.E.E., "Stratton Lodge", 26, Manor Road, Barnet, Herts. *l, c.*

1957 Campbell, A. M. L., M.A., D.M., F.R.C.P., 79, Pembroke Road, Clifton, Bristol, 8. *ent.*

1945 Carlier, Stuart E. W., F.R.E.S., 6, Warwick Buildings, Warwick Road, Solihull, Warwickshire. *l, c.*

1950 Carolsfeld-Krause, A. G., Slotsherrens Have 97, (Kobenhavn)-Vanlose, Copenhagen, Denmark. *l.*

1956 Carter, C. I., 42, Home Close, Long Lane, Heronsgate, Rickmansworth, Herts. *ent. arachnology.*

1946 Carter, R. A., M.A., M.B., M.R.C.P., F.Z.S., 72, Panton St., Cambridge. *c.*

1959 Carter, Lt.-Col. W. A. C., Briarfields, Sandels Way, Beaconsfield, Bucks. *l.*

1946 Chalmers-Hunt, J. M., F.R.E.S., 70, Chestnut Avenue, West Wickham, Kent. *l.*

1956 Chatelain, R. G., *Council*, 65, East Drive, St. Mary Cray, Kent. *l.*

1958 Chipperfield, H. E., F.R.E.S., 27, Chilton Avenue, Stowmarket, Suffolk. *lep, hym, col.*

1952 Christie, J., 137, Gleneldon Road, Streatham, S.W.16. *d.*

1945 Christie, L., *Lanternist*, 137, Gleneldon Road, Streatham, S.W.16. *ent.*

1954 Clark, J., 7, Park Road, Bognor Regis, Sussex. *ent.*

1951 Clarke, C. Astley, M.D., F.R.C.P. (Lond.), High Close, Thorsway, Caldy, Cheshire. *l.*

1936 Classey, E. W., F.R.E.S., 4, Church Street, Isleworth, Middlesex. *l.*

1934 Cole, G. A., M.A., F.C.A., Highfield, Westhumble, Dorking, Surrey.

1953 Coleridge, W. L., The Gnoll, Bishops Teignton, nr. Teignmouth, S. Devon. *ent, orn.*

1946 Collier, Major A. E., M.C., B.A., F.R.E.S., Lynher, Horsham Rd., Cranleigh, Surrey. *l.*

1936 Cooper, B. A., B.SC., A.R.C.S., F.R.E.S., Entomology Dept., Shardlow Hall, Shardlow, Derby. *c* (*Elateroidea*), *ecology, ec. ent, l, nat. phot.* (*Life Member*).

1947 Cornelius, J. A., B.SC., A.R.I.C., 15, Ringmore Rise, Forest Hill, London, S.E.23. *l.*

1922 Couchman, L. E., F.R.E.S., 35, Browne Street, West Hobart, Tasmania. *l.*

1909 Coulson, F. J., "Burnigill", 24, Springfield Avenue, Merton Park, London, S.W.20. *c, hem, l.*

1918 Court, T. H., F.R.G.S., "The Pingle", Mill Road, Market Rasen, Lincs.

1947 Cox, W. A. A., 65, Bamford Road, Bromley, Kent. *ent.*

1950 Coxey, S., "Balcombe", 109, Regent Road, Bolton, Lancs. *l.*

1953 Coxon, G. F., "The White Cottage", Weald, Sevenoaks, Kent. *ent, nat. hist.*

1937 Craske, R. M., 22, Edge Street, Campden Hill, London, W.8. *ent.*

1918 Craufurd, Clifford, "Denny," Bishop's Stortford, Herts. *l.*

1933 Crewdson, R. C. R., F.R.E.S., " The Grange," Delamere, Northwich, Cheshire. *l.*

1947 Cripps, C. H., M.A., Bulls Head Farm, Eakley Lanes, Stoke Goldington, Newport Pagnell, Bucks. *l, rh.* (*Life Member*.)

1949 Cross, G. S. E., A.C.T.S.INC., 31, Avenue Road, Finchley, London, N.12. *l.*

1932 Crow, P. N., F.R.E.S., c/o Westminster Bank, Ltd., Harpenden, Herts. *l.*

1950 Cruttwell, G. H. W., Old Ford House, Frome, Somerset. *ent.*

1954 Cue, P., " Lhasa," Malvern Road, Ashford, Kent. *ent.*

1947 Cunningham, D., M.A., 42, Rae Street, Dumfries. *l, flora.*

1937 Curtis, A. E., F.R.E.S., " The Cottage," Ifold Estate, Loxwood, Billingshurst, Sussex. *l.*

1946 Curtis, W. Parkinson, F.R.E.S., M.S.B.E., Ladywell Cottage, Tower Road, Branksome Park, Bournemouth, Hants. *l.*

1956 Dacie, J. V., M.D., 10, Alan Road, Wimbledon, S.W.19. *l.*

1951 Daly, D. W., P.O. Box 1670, Salisbury, Southern Rhodesia. *ent.*

1927 Danby, G. C., "Sheringham", 53, Albion Road, Sutton, Surrey. *l.*

1956 Davidson, W. F., F.G.S., 9, Castlegate, Penrith, Cumberland. *l, c.*

1951 Davis, G. A. N., M.R.C.S., L.R.C.P., Holt Wood, Aylesford, Kent. *l.*

1933 Demuth, R. P., M.A., L.R.I.B.A., "Watercombe House", Waterlane, Oakridge, Stroud, Glos. *l.*

1930 Denvil, H. G., F.R.E.S., F.R.H.S., 4, Warwick Road, Coulsdon, Surrey. *l, c.*

1947 Dewick, A. J., Curry Farm, Bradwell-on-Sea, Southminster, Essex. *l.*

1958 Dillon, T. J., 4, Alleyn Crescent, West Dulwich, London, S.E.21. *l.*

1945 Dixon, C. H., Northbrook Farm, Micheldever, Hants. *ent.*

1958 Dollimore, G. F., Willerby, Ashley Park Estate, St. Ives, Hants. *l.*

1921 Dolton, H. L., 36, Chester Street, Oxford Road, Reading, Berks. *l.*

1958 Downes, Cdr. A. S., D.S.O., R.N., Canford, Lee-on-Solent, Hants. *ent. orn.*

1930 Dudbridge, B. J., B.A., c/o The Secretariat, Dar-es-Salaam, Tanganyika. *ent.*

1949 Duffield, C. A. W., M.C., J.P., F.R.E.S., Pickersdane, Brook, near Ashford, Kent. *l, c, hem, homoptera.*

1946 Dunbar, J. G., Royal Commission, Ancient and Historic Monuments (Scotland), 7, Coates Gardens, Edinburgh 1. *l.*

1950 Dunk, H. C., 24, Abbots View, Abbots Rise, Kings Langley, Herts. *l.*

1956 Dunn, T. C., B.SC., D.T., P.T., The Poplars, Chester-le-Street, Co. Durham. *l, esp. ml.*

1952 Dyson, R. C., N.D.H., F.R.E.S., 112, Hollingbury Park Avenue, Brighton 6, Sussex. *l.*

1927 Eagles, T. R., *Hon. Librarian*, 32, Abbey Road, Enfield, Middlesex. *l, c.*

1937 Easton, N. T., D.F.H., Westbury, West End Road, Mortimer, Berks. *l, g, nat. phot.*

1949 Edwards, F. H., Rockfield, Abbey Road, Worthing, Sussex. *l*

1945 Edwards, G. Graveley, Talbot Croft, St Albans, Herts. *l.*

1945 Edwards, R. C., Arlesley, Pilgrims' Way, Westerham, Kent. *ent.*

1933 Elgood, W. S., M.A., North Brink, Wisbech, Cambs. *l.*

1951 Ellison, Eldon F. D., Firbank, Charles Hill, Tilford, Surrey. *l.*

1945 Ellison, R. Eldon, F.R.E.S., *Council*, Firbank, Charles Hill, Tilford, Surrey. *l.*

1937 Embry, B., F.R.E.S., Brocks Ghyll, Newick, Sussex. *l.*

1932 Ennis, L. H., F.C.A., Southery, Milbourne Lane, Esher, Surrey. *l.*

1947 Evans, Miss E., c/o Royal Entomological Society of London, 41, Queen's Gate, London, S.W.7.

1945 Evans, L. J., 73, Warren Hill Road, Birmingham 23. *l.*

1946 Fairclough, R., "Blencathra," Deanoak Lane, Leigh, Surrey. *ent.*

1947 Farwell, I. G., F.R.E.S., "Mayfield Villa", Portmore, Lymington, Hants. *l.*

1955 Fearnehough, T. D., A.MET., 13, Salisbury Road, Dronfield, Nr. Sheffield. *l.*

1947 Feilden, G. St. Clair, c/o Lloyds Bank, Exeter. *ent.*

1946 Ferguson, L. F., L.D.S., R.C.S., "Harley House," Gloucester Road, Teddington, Middlesex. *c.*

1930 Ferrier, W. J., F.R.E.S., 86, Portnalls Road, Coulsdon, Surrey. *l.*

1940 ffennell, D. W. H., Martyr Worthy Place, Winchester, Hants. *l.*

1955 Firmin, Joseph, 12, Worthington Way, Lexden, Colchester, Essex. *l.*

1943 Ford, E. B., M.A., D.SC., F.R.S., F.R.E.S., The University Museum, Oxford. *ent, g.*

1920 Ford, L. T., B.A., 28, Park Hill Road, Bexley, Kent. *l.*

1939 Forster, H. W., 32, Park Mead, Harlow, Essex.

1915 Foster, T. B., "Downlands", 24, York Road, Selsdon, Surrey. *l.*

1948 Fraser, Lt.-Col. F. C., I.M.S.RETD., M.D., M.R.C.S., L.R.C.P., F.R.E.S., 55, Glenferness Avenue, Winton, Bournemouth, Hants. *od, n.*

1952 Fraser, R. A., c/o P. A. Fraser, Blairbeth, Amatikulu, Zululand, S. Africa. *l, c.*

1948 Frazer, J. F. D., M.A., D.M., PH.D., F.Z.S., F.R.E.S., Stone House, Harbourland, Boxley, Maidstone, Kent. *rh, r.*

1946 Friedlein, A. F. E., "St. Andrews", 85, Priests Lane, Shenfield, Brentwood, Essex. *l.*

1958 Friend, M. J., 160, Brockenhurst Avenue, Worcester Park, Surrey. *l. ent.*

1951 Frohawk, Mrs. M. J., Essendene, Cavendish Road, Sutton, Surrey. *ent, nat. hist.*

1959 Gardiner, B. O. C., 43, Woodlark Road, Cambridge. *l.*

1947 Gardner, A. E., F.R.E.S., *Hon. Curator*, 29, Glenfield Road, Banstead, Surrey. *od, l.*

1952 Garland, W. A., 1, Testard Road, Guildford, Surrey. *rh.*

1954 Gerard, B. McC., 68, Fern Lane, Heston, Hounslow, Middx. *ent.*

1950 Gent, P. J., 3, Irthlingborough Road, Wellingborough, Northants. *l.*

1952 Gillman, Lt.-Col. H. C. R., M.B.E., R.A., Noads House, Tilshead, Wilts. *ent.*

1950 Goater, B., B.SC., F.R.E.S., *Hon. Secretary*, 71, Grant's Close, Mill Hill East, N.W.7. *l, orn, b.*

1936 Goodban, B. S., 99, Lime Grove, Eastcote, Ruislip, Middx. *l.*

1957 Goodden, R. C., Seafields House, Charmouth, Dorset. *l.*

1935 Goodliffe, F. D., M.A., Lord Wandsworth College, Long Sutton, Basingstoke, Hants. *ec. ent, d* (*Chloropidae*), *c* (*Dytiscidae*).

1942 Goodson, A. L., 26, Park Road, Tring, Herts. *l.*

1955 Gooseman, M. P., F.R.E.S., "Lonicera", Bottesford Road, Bottesford, Scunthorpe, Lincs. *l, c.*

1926 Gordon, D. J., C.B., B.A., F.R.E.S., Table Office, House of Commons, London, S.W.1. *c, l.* (*Life Member*).

1949 Gould, A. W., 30, Shooters Hill Road, Blackheath, S.E.3. *c.*

1936 Gowing-Scopes, E., F.R.E.S., "Oakhurst", Oakwood Road, Crofton, Orpington, Kent. *c.*

1958 Greenwood, J. A. C., O.B.E., F.R.E.S., Woodcote, Horsell Park, Woking, Surrey. *l.*

1950 Greenwood, K. C., M.B., CH.B., "Rydal," 1, Conyers Avenue, Birkdale, Southport, Lancs. *l, ml.*

1953 Griffiths, G. C. D., F.R.E.S., 13, Woodlands Avenue, Finchley, London, N.3. *d (Agromyzidae)*
1957 Groves, E. W., 143, Carshalton Park Road, Carshalton, Surrey. *hem, d, hym. ec.*
1950 Gully, J. G., Howells Bank Farm, Ringmer, Sussex. *l.*
1955 Gurdon, J. B., Furnell House, Frensham, Surrey. *l.*
1958 Gyselman, Miss Y. P., Chy-an-Gwel, Crippas Hill, St. Just, nr. Penzance, Cornwall. *l. c.*

1947 Haggett, G. M., F.R.E.S., 1, Torton Hill, Arundel, Sussex. *l, ent.*
1953 Hall, D. G., 34, Ellerton Road, Wandsworth Common, London, S.W.18. *c.*
1949 Hall, Stewart Scott, C.B., M.SC., F.R.AE.S., 9, Laurel Court, Hawthorne, Melbourne E.3, Australia.
1955 Halstead, D. G. H., 1, Barry Avenue, Windsor, Berks. *c.*
1944 Hammond, H. E., F.R.E.S., 16, Elton Grove, Birmingham 27 *l, ent.*
1949 Hanson, S. M., F.R.E.S., 11, The Close, Spring Grove Road, Isleworth, Middlesex. *l.* (*Life Member.*)
1948 Harbottle, The Rev. A. H. H., M.A., 6, Ranelagh Grove, St. Peters, Broadstairs, Kent. *l.*
1943 Hards, C. H., F.R.E.S., 40, Riverdale Road, Plumstead, London, S.E.18. *l.*
1956 Hardy, D. E., District Bank House, Heswall, Wirral, Cheshire. *l.*
1943 Harper, Comdr. G. W., R.N., F.R.E.S., Neadaich, Newtonmore, Inverness-shire, Scotland. *l.*
1954 Harper, M. W., Neadaich, Newtonmore, Inverness-shire, Scotland. *l, ent.*
1936 Harris, W. H. A., " Kemel," Oak Tree Close, Stanmore, Middlesex. *l.*
1951 Harrison-Gray, M., 16, Carlton House Terrace, London, S.W.1. *Saturniidae.*
1953 Harvey, Cpl. J. G. (Staff), R.A.F. Hospital, Ely, Cambs. *c.*
1924 Hawkins, C. N., F.R.E.S., 23, Wilton Crescent, Wimbledon, London, S.W.19. *l, c, g.*
1958 Haxby, C. R., 4, Windermere Terrace, Bradford 7. *ent.*
1938 Haynes, R. F., *Recorder*, 29, Fairfield Drive, Dorking, Surrey. *l.*
1923 Hayward, Capt. K. J., F.R.E.S., F.Z.S., F.R.G.S., Instituto Miguel Lillo, Calle Miguel Lillo, 205, Tucuman, Republica Argentina. *l, orn, c.*
1954 Heath, John, F.R.E.S., c/o The Nature Conservancy, Merlewood Research Station, Grange-over-Sands, Lancs. *ml.*
1920 Hemming, A. Francis, C.M.G., C.B.E., F.Z.S., F.R.E.S., 28, Park Village East, Regents Park, London, N.W.1. *l.*
1924 Henderson, J. L., *Hon. Treasurer*, 6, Haydn Avenue, Purley. Surrey. *c.*
1951 Herbulot, C., 31, Av. d'Eylau, Paris 16e, France. *l.*

1954 Hervey, The Rev. Canon G. A. K., M.A.(OXON.), Great Salkeld Rectory, Penrith, Cumberland. *ent, orn, b.*

1945 Heslop, Mrs E. A., " Belfield," Poplar Road, Burnham-on-Sea, Somerset. *l. nat. hist.*

1931 Heslop, I. R. P., M.A., F.R.E.S., "Belfield", Poplar Road, Burnham-on-Sea, Somerset. *l, nat. hist.*

1946 Hewson, F., F.R.E.S., 23, Thornhill Drive, Gaisby, Shipley, Yorks. *l, hym. parasitica.*

1948 Hickin, N. E., PH.D., B.SC., F.R.E.S., *Vice-President*, Home Farm, Fetcham, Surrey. *t.*

1956 Higgins, W. J., Standard Nursery, Old Worthing Road, East Preston, Sussex. *l.*

1948 Hillaby, J. D., F.Z.S., F.R.E.S., 85, Cholmley Gardens, London, N.W.6. *ent.*

1945 Hinton, H. E., PH.D., B.SC., F.R.E.S., Department of Zoology, Bristol University, Bristol, Glos.

1949 Hoare-Ward, J. W., Box's Farm, Horsted Keynes, Sussex. *l*

1953 Hodgkinson, Alexander, A.R.C.A., 12, Kitson Road, Barnes, London, S.W.13. *l.*

1956 Homer, T. J. G., M.A., A.M.INST.T., Yelton Hotel, Hastings, Sussex. *l.*

1950 Honeybourne, T. J., F.R.E.S., " Laceys," 97, Birchwood Road, Wilmington, Dartford, Kent. *l.*

1945 Howard, A. P., 65 Hale Lane, London, N.W.7. *ent.*

1927 Howard, J. O. T., M.A., Wycherley, Deepdene Wood, Dorking, Surrey. *l.*

1953 Howarth, Mrs. Helen, "Arrochar", Barnet Gate, Arkley, Herts. *l, b.*

1931 Howarth, T. G., B.E.M., F.R.E.S., F.Z.S., "Arrochar", Barnet Gate, Arkley, Herts. *l.*

1934 Huggins, H. C., F.R.E.S., 65, Eastwood Boulevarde, Westcliff-on-Sea, Essex. *l, ent.*

1947 Humphrey, S. W., Pear Tree House, Roade, Northamptonshire. *l, rh.* (*Life Member.*)

1957 Hurworth, P., 10, Linden Grove, Rumney, Cardiff. *rh. c.*

1933 Hutchings, H. R., 127, Chadacre Road, Stoneleigh, Surrey. *l.*

1950 Hyde, G. E., F.R.E.S., "Pantiles", Warnington Drive, Bessacarr, Doncaster, Yorks. *l, od.*

1953 Hyde, R. A., " Woodside," Reading Road, Finchampstead, Berks. *c.*

1950 Hyde-Wyatt, B., 108, Lindsay Road, Worcester Park, Surrey. *od, c, l.*

1956 Imber, S. F., 241, Mayall Road, Herne Hill, London, S.E.24. *rh.*

1953 Ives, Major D. H., R.A., Highbreak, Princes Road, Rhuddlan, Flintshire. *l.*

1956 Jackson, Miss D. J., North Cliff, St. Andrews, Fife. *c, hym. par.*
1940 Jackson, Capt. Reginald A., c.b.e., r.n., f.r.e.s., Middle Farm House, Codford St. Mary, Warminster, Wilts. *ent, l.*
1923 Jacobs, S. N. A., s.b.st.j., f.r.e.s., *Trustee*, "Ditchling", 54, Hayes Lane, Bromley, Kent. *ml, eml.*
1955 Jacoby, M. C., 231, Cauldwell Hall Road, Ipswich, Suffolk. *ent.*
1956 James, B. C., Flat No. 1, B.S.C. Ltd., Allscot Wellington, Shropshire. *l.*
1948 Janson, D. B., 44, Great Russell Street, London, W.C.1. *ent.* (*Life Member*).
1925 Jarvis, C. MacKechnie, f.l.s., Sussex House, Parkside, Wimbledon. *c.*
1938 Jarvis, F. V. L., b.sc., f.r.e.s., "Corbière", 33, Greencourt Drive, Bognor Regis, Sussex. *l, g.*
1947 Jay, E. P., Surrey Cottage, Littlehampton, Sussex. *l.*
1951 Jefferson, T. W., 37, Riversdale Terrace, Sunderland, Co. Durham. *l.*
1948 Jeffs, G. A. T., Nunsholme, Nuns Corner, Grimsby, Lincs. *l, ent.*
1958 Jenner, D., 2, Kiln Barn Road, Ditton Court Farm, Ditton, nr. Maidstone, Kent. *ent.*
1957 Johnson, Major F. L., m.b.e., t.d., f.r.e.s., 25, Fermoy Road, Thorpe Bay, Essex. *rh.*
1945 Johnson, Major-General Sir George F., k.c.v.o., c.b., c.b.e., d.s.o., Castlesteads, Brampton, Cumberland. *l, orn.*
1952 Jopson, F. L., Langdale, Higherford, Nelson, Lancs. *l.*

1956 Keith-Johnston, Colin, 350, Finchley Road, London, N.W.3. *l.*
1946 Kemp, J. K. C., 12, Nab Wood Crescent, Shipley, Nr. Bradford, Yorks. *l.*
1956 Kennard, H. A., Torns, Ashburton, Devon. *l, ml.*
1943 Kershaw, Col. S. H., d.s.o., Alderman's Place, Aspley Heath, Bletchley, Bucks. *l.*
1928 Kettlewell, H. B. D., m.a., m.b., b.chir., m.r.c.s., l.r.c.p., f.r.e.s., Dept. of Zoology, University Museum, Oxford. *g, l.*
1947 Klimesch, J., Donatusgasse 4, Linz-a-Donau, Austria. *ml.*
1944 Kloet, G. S., m.sc., a.m.inst.b.e., f.z.s., f.r.e.s., 14, Hawthorn Lane, Wilmslow, Cheshire. *ent.*
1955 Klots, Prof. Alexander B., b.s., m.s., ph.d., 215, Young Avenue, Pelham, New York, U.S.A. *l, Systematics, Ecology*
1959 Knight, J. E., Doughlan Cottage, Ross-on-Wye, Herefs. *l.*
1958 Knill-Jones, R. P., Brooklands, Freshwater, Isle of Wight. *l.*

1951 Lane, A. W., 178, Ravenscroft Road, Beckenham, Kent. *c.*
1947 Lanfear, A. H., " Highclere," 20, South Eastern Road, Ramsgate. Kent. *l.*

1951 Langmaid, J. R., b.a., m.b., b.chir., 9, Craneswater Park, Southsea, Portsmouth, Hants. *l.*
1956 Langton, P. H., 17, Warnham Road, Horsham, Sussex. *c, l.*
1941 Last, H. R., f.r.e.s., 12, Winkworth Road, Banstead, Surrey. *c, l.*
1946 Latham, F. H., f.r.e.s., "The Elms", Mapplesborough Green, Redditch, Worcs. *l, ml, d.*
1927 Lawson, H. B., " Churchmead," Pirbright, Surrey. *l.*
1957 Lawson, P. H., b.a., "The Mount", Chobham, nr. Woking, Surrey. *l.*
1952 Leech, M. J., " The Spinney," Freshfield Road, Formby, Nr. Liverpool. *l, c.*
1952 Lees, F. H., f.r.e.s., " The Gables," Maidencombe, Torquay. *l.*
1948 Leston, D., f.z.s., f.r.e.s., *Council*, 44, Abbey Road, London, N.W.8. *hem.* (*Life Member.*)
1947 Lewis, E., f.r.e.s., 8, Parry Road, South Norwood, London, S.E.25. *c.*
1934 Line, H. V., 11, Priory Avenue, Petts Wood, Orpington, Kent.
1951 Ling, R. B., The Severells, Rectory Lane, Sidcup, Kent. *l.*
1933 Lipscomb, Maj.-Gen. C. G., H.Q., J.S.L.O., Bonn, Germany. *l.*
1937 Lisney, A. A., m.a., m.b., f.r.e.s., " Dune Gate," Clarence Road, Dorchester, Dorset. *l.*
1948 Llewelyn, Mrs. J. R., b.sc. (hort.), f.r.e.s., 38, Fernleigh Rise, Ditton, Maidstone, Kent. *ent.*
1948 Lockington, N. A., m.a., a.r.i.c., 19, Spring Grove, Loughton, Essex. *ent.*
1948 Lorimer, R. I., 8, Southway, Totteridge, N.20. *l.*
1950 Lovell, R., 27, Athenaeum Road, Whetstone, London, N.20. *l.*
1959 Luff, M. L., Flat 3, 8, The Downs, Wimbledon, S.W.20. *c.*
1957 Lydgate-Bell, H. G., 74, Belgrave Avenue, Watford, Herts. *l, orn.*
1954 Lyon, F. H., m.b.e., f.r.e.s., Green Headland, Sampford Peverell, Tiverton, Devon. *l.*

1958 McCleery, Dr. C. H., 22, Whitwell Way, Coton, Cambridge. *ent.*
1953 McClure, A. M., Bowyers Court, Wisborough Green, Sussex. *l.*
1952 McCrae, A. W. R., P.O. Box 41, Kampala, Uganda. *l.*
1950 McDermott, Miss C. A., " The Dene," Borough Green, Kent. *rh.*
1952 Mackworth-Praed, C. W., f.r.e.s., Castletop, Burley, Hants. *ent.*
1949 Macnicol, D. A. B., m.b., ch.b., 52, St Albans Road, Edinburgh 9. *l. ml.*
1931 MacNulty, B. J., ph.d., b.sc., f.r.i.c., Ministry of Supply Tropical Testing Establishment, Port Harcourt, Nigeria. *l.*
1956 Maitland-Smith, Lt. Gerald, 2/10 P.M.O., Gurkha Rifles, Falis, Claremont Road, Claygate, Surrey. *l.*
1949 Manley, G. E. L., 151, Ebury Street, London, S.W.1. *l.*

1945 Manley, Lt.-Col. W. B. L., F.R.E.S., Greenways, Shoreham Road, Otford, Kent. *ent.*
1956 Mansell, G. H., 20, Norfolk Mansions, London, S.W.11. *l.*
1932 Marcon, Rev. J. N., Loxwood Vicarage, Billingshurst, Sussex. *l.*
1930 Marsh, Capt. Dudley G., "White Gates", Wingham Rd., Littlebourne, Nr. Canterbury, Kent. *l.*
1956 Marsh, Capt. J. C. S., c/o Lloyds Bank Ltd., Cox's & King's Branch, 6, Pall Mall, S.W.1. *l.*
1950 Martin, E. L., 40, Princes Road, London, S.W.19. *l, t.*
1922 Massee, A. M., O.B.E., D.SC., F.R.E.S., East Malling Research Station, Kent. *hem, c, acarina.*
1959 Matheson, I. C. C., 109, Alleyn Park, West Dulwich, S.E.21. *l.*
1955 Matthews, D. P. L., T.D., Flat 5, 51, Cadogan Place, London, S.W.1. *l.*
1947 Maxwell, Sir Reginald M., M.A., G.C.I.E., K.C.S.I., Barford House, St Mary Bourne, Andover, Hants. *ent.*
1951 May, J. T., Homeland, Beech, Alton, Hants. *l.*
1946 Mellows, Charles, Alliott House, The College, Bishop's Stortford, Herts. *l, hym.*
1952 Menzies, I. S., "Eden Roc", Florida Road, Ferring-by-Sea, Sussex. *c, l, orth.*
1946 Mere, R. M., F.R.E.S., *Trustee, Vice-President,* Mill House, Chiddingfold, Surrey. *l.*
1951 Messenger, J. L., B.A., *Council,* Stonehaven, Wormley Hill, Witley, Surrey. *l.*
1951 Michaelis, H. N., 10, Didsbury Park, Didsbury, Manchester 20. *l.*
1945 Michaud, J., PH.D., 22, Routh Road, London, S.W.18. *ent.*
1938 Minnion, W. E., 40, Cannonbury Avenue, Pinner, Middlesex. *l.*
1952 Montgomery, Major J. R. P., M.C., 17 Parachute Bn. (9D.L.I.) T.A., Burt Terrace Drill Hall, Gateshead, Co. Durham. *l.*
1957 Moon, H. N., 319, Coniscliffe Road, Darlington. *rh.*
1946 Moore, B. P., B.SC., PH.D., F.R.E.S., C.S.I.R.O. Divn. of Industrial Chemistry, P.O. Box 4331, G.P.O., Melbourne, Victoria, Australia. *od, c.*
1947 Moore, D. R., Manor Cottage, Blackthorne, nr. Bicester, Oxon. *l.* (*Life Member.*)
1947 Moppett, A. A., B.A., 39, Fairdale Gardens, Hayes, Middlesex. *ent.*
1951 More, D., The Little House, Hockley Road, Rayleigh, Essex. *ent.*
1949 Morgan, H. D., F.R.E.S., 110, Victoria Avenue, Porthcawl, Glam. *ent.*
1920 Morison, G. D., B.SC., PH.D., F.R.E.S., Dept. Advisory Entomology, N. of Scotland Agricultural College, Marischal College, Aberdeen, Scotland. *ec. ent.*
1930 Morley, A. M., O.B.E., M.A., F.R.E.S., 9, Radnor Park West, Folkestone, Kent. *l.*

1953 Morris, M. G., F.R.E.S., *Council*, "Old Timbers", 57, St. Mary's Avenue, Shortlands, Kent. *l.*
1945 Murray, Rev. D. P., F.R.E.S., The Lodge, Stoke Golding, Nr. Nuneaton, Leics. *l.*
1957 Murray, E. G., 22, Evelyn St., Deptford, London, S.E.8. *l.*
1949 Newman, D. E., 4, Andrew Road, Wallingford, Berks. *l.*
1926 Newman, L. Hugh, F.R.E.S., 'Betsoms', Westerham, Kent. *l.*
1950 Newton, J., B.SC., 11, Oxlease Close, Tetbury, Glos. *l.*
1945 Newton, J. L., M.R.C.S., L.R.C.P., F.R.E.S., 8, Stainburn Crescent, Leeds 17. *l, b.*
1930 Niblett, M., F.R.E.S., 10, Greenway, Wallington, Surrey. *galls.*
1953 Nissen, C. L., F.R.E.S., Flat 10, 250, South Norwood Hill, London, S.E.25. *l.*
1955 Noble, F. A., 2, Newton Road, Sparkhill, Birmingham, 11. *l.*
1958 Nolde, W. F., 83, Hazelbank Road, Catford, London, S.E.6. *c.*

1938 Odd, D. A., F.Z.S., F.R.E.S., "Herons Ghyll", Stall House Lane, North Heath, Pulborough, Sussex. *l.*
1932 O'Farrell, A. F., B.SC., A.R.C.S., F.R.E.S., New England University, Armidale, N.S.W., Australia. *od, cr, ent.*
1934 Oliver, G. B., "Corydon", Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*
1943 Oliver, G. H. B., "Corydon", Amersham Road, Hazlemere, High Wycombe, Bucks. *l.*
1952 Olsen, E. T., Hersegade 5, Roskilde, Denmark. *ml.*
1945 Owen, Godfrey V., Orford, 63, Manor Park Road, West Wickham, Kent. *l.*

1958 Painter, H. L., "Forsters", West Malling, Kent. *l.*
1942 Parfitt, R. W., "Penpethy", Manor Rd., Farnborough, Hants. *l.*
1946 Parmenter, L., F.R.E.S., 94, Fairlands Avenue, Thornton Heath, Surrey. *d.* (*Life Member.*)
1949 Parsons, R. E. R., F.R.E.S., I.P., Woodlands Lodge, Woodlands Close, Ottershaw, Surrey. *l.*
1950 Payne, J. H., 10, Ranelagh Road, Wellingborough, Northants. *rh, breeding.*
1940 Payne, R. M., 8, Hill Top, Loughton, Essex. *c, od, orth, b.* (*Life Member.*)
1957 Pearce, C. J., 2, Head Street, Rowhedge, Colchester, Essex. *ent.*
1955 Pearson, A. J. R., Dower Cottage, Feering, Colchester, Essex. *rh.*
1959 Peet, T. N. D., Beaconswood, Rednal, nr. Birmingham. *l.*
1940 Pelham-Clinton, Edward C., F.R.E.S., 34, Craigmillar Park, Edinburgh, 9. *l.*
1958 Penrose, R. J., 86, Mildred Avenue, Watford, Herts. *ent.*
1928 Perkins, J. F., B.SC., F.R.E.S., 95, Hare Lane, Claygate, Surrey. *hym.*

1944 Perry, K. M. P., 15, Roundwood Way, Banstead, Surrey. *c.*

1950 Peters, Wallace. M.B., B.S., M.R.C.S., L.R.C.P., F.R.E.S., 175, Lauderdale Mansions, London, W.9. *ent*, *l.*

1946 Phelps, C. C., M.B.E., 4, Queensberry House, Friars Lane, Richmond, Surrey. *l.*

1958 Phillips, Miss A., 56, Park Avenue, Maidstone, Kent. *c.*

1958 Phillips, J. H. C., M.A., F.R.C.S., 29, Headlands, Kettering, Northants. *l.*

1945 Philpott, V. W., F.R.E.S., Rose Cottage, Watergate Lane, Broadmayne, Dorset. *l.*

1933 Pinniger, E. B., F.R.E.S., "Littlecote", 19, Endlebury Road, Chingford, London, E.4. *od*, *n*, *l.*

1949 Platts, J. H., Green Shutters, Manthorpe Road, Grantham, Lincs. *l.*

1947 Polacek, V. B., Brandys-nad-Labem, c.p. 601, 1 patro, Komenskeho-ulice, Czeckoslovakia. *b*, *ent*, *orn.*

1958 Pollak, P. M., 5, Matlock Court, Kensington Park Road, W.11. *col. arachnology.*

1933 Pooles, S. W. P., 154, Thorpe Road, Peterborough, Northants. *l.*

1949 Popham, W. J., 89, Frederick Place, Plumstead, London, S.E.18. *l.*

1955 Potter, N. B., The Mill House, North Warnborough, Hants. *l.*

1950 Price, G. C., " Alpha," 67, Cornyx Lane, Solihull, Warwickshire. *l.*

1948 Prideaux, A. G., B.A., Union Club, Carlton House Terrace, London, S.W.1. *ent* (*rh*), *orn.*

1957 Pring, M., Dorset House, Bryanston School, Blandford, Dorset. *l.*

1945 Purefoy, J. Bagwell, c/o Upper Tilt Works, Cobham, Surrey. *l.*

1946 Ransome, Major-General A. L., C.B., D.S.O., M.C., The Close, Braishfield, Romsey, Hants. *rh.*

1955 Raven, Rev. Canon C. E., D.D., D.SC., F.B.A., F.L.S., 10, Madingley Road, Cambridge. *l.*

1953 Rawlings, C. J., 5, Berther Road, Emerson Park, Hornchurch, Essex. *l.*

1946 Ray, H., Mill House Cottage, Bishopstoke, Hants. *rh.*

1955 Redgrave, A. C. R., 17, Woods Orchard Road, Tuffley, Gloucester. *l.*

1952 Reid, J. F., 19, High Street, Leighton Buzzard, Beds. *l.*

1950 Reid, W., A.M.I.C.E., 6, Whirlow Park Road, Sheffield 11, Yorks. *ent.*

1952 Richards, A. W., M.A., B.SC., "Oriel", Court Moor Avenue, Fleet, Hants. *od*, *orth*, *l*, *ml*, *Pyralidae.*

1945 Richards, Prof. O. W., M.A., D.SC., F.R.S., F.R.E.S., Department of Zoology, Imperial College of Science and Technology, South Kensington, London, S.W.7. *ent.*

1957 Richards, R. F., 25, Bishops Road, Fulham, S.W.6. *l.*

1948 Richardson, A. E., 391, Malden Road, Worcester Park, Surrey. *l.*

YEAR OF ELECTION.

1942 Richardson, Austin, M.A., F.R.E.S., Beaudesert Park, Minchinhampton, Glos. *l.*

1936 Richardson, N. A., 11, Windsor Street, Bletchley, Bucks. *l.*

1953 Riordan, B. D., 75, Blenheim Road, North Harrow, Middlesex. c.

1953 Rivers, C. F., F.R.E.S., 98, Windsor Road, Cambridge. *l* (*virus diseases of insects*).

1910 Robertson, G. S., M.D., "Struan", Storrington, near Pulborough, Sussex. *l.*

1949 Robinson, H. S., F.R.E.S., c/o Employees' Provident Fund, Brickfields Road, Kuala Lumpur, Malaya. *l.*

1954 Robinson, P. J. M., B.SC., A.M.I.C.E., c/o John Mowlem & Co., P.O. Box 1578, Teheran, Iran. *l.*

1953 Roche, C. G., A.C.A., 80, Princes Gate Mews, London, S.W.7. *hym.*

1942 Roche, P. J. L., M.R.C.S., L.R.C.P., F.R.E.S., 511 Cowbridge Road East, Cardiff. *c, hem, e.l.*

1953 Rose, Ian C., "Shrublands", Mistley, Essex. *ent.*

1932 Rudland, W. Lewis, F.R.E.S., 452, Hythe Road, Ashford, Kent. *l.*

1947 Rumsey, F., 46, Warren Road, Banstead, Surrey. *l.*

1952 Russwurm, A. D. A., 1, Langley Oaks Avenue, Sanderstead, Surrey. *l.*

1946 Saundby, Air-Marshal Sir Robert H. M. S., K.C.B., K.B.E., M.C., D.F.C., A.F.C., F.R.E.S., Oxleas, Burghclere, near Newbury, Berks. *l.*

1947 Saunders, J. M. K., 22, Francis Road, Pinner, Middlesex. *l* (*especially rh*).

1958 Savage, L. E., 65, Cranmer Avenue, Hove 4, Sussex. *l.*

1956 Schofield, Wing Comdr. C. H., Headley Hill, Bordon, Hants. *l, b.*

1927 Scott, Col. E., D.S.O., M.D., S.B.ST.J., "Suomi," Westwell, Ashford, Kent. *l.*

1948 Sculthorp, A. H., 46, Pick Hill, Waltham Abbey, Essex. *c.*

1946 Self, K. W., 53b, Earls Avenue, Folkestone, Kent. *ent.*

1923 Sevastopulo, D. G., F.R.E.S., c/o Ralli Bros., Ltd., P/O Box 881, Mombasa, Kenya. *l.* (*Life Member*).

1958 Sharman, A. J., Pallavaram P.O., South India. *rh.*

1951 Shaw, R. G., 5, Barnham Road, Chingford, London, E.4. *l, hem.*

1947 Short, H. G., M.SC., "Leaholme", 8, Milbourne Lane, Esher, Surrey. *l.*

1954 Showler, A. J., M.SC., 19, Harval Crescent, Abbey Wood, London, S.E.2. *l.*

1948 Siggs, L. W., Sungate, Football Green, Minstead, nr. Lyndhurst, Hants. *l.*

1939 Siviter Smith, P., F.R.E.S., Candlestick House, Heaton Drive, Edgbaston, Birmingham, 15. *l.*

1957 Skinner, B. F., 85, Elder Road, W. Norwood, S.E.27. *l.*

1953 Smith, D. S., F.R.E.S., The Daffodils, Doyle Road, St. Peter Port, Guernsey, C.I. *l.*

1956 Smith, F. G., Shenstone Lodge, Cokes Lane, Chalfont St. Giles, Bucks. *l.*

1941 Smith, Lieut. Fdk. Wm., R.N.V.R., South Fawley Cottage, Wantage, Berks. *l, hym.* (*Life Member*).

1946 Southwood, T. R. E., B.SC., PH.D., A.R.C.S., M.I.BIOL., F.R.E.S., Imperial College Field Station, Silwood Park, Sunninghill, Nr. Ascot, Berks. *ent, hem, c, ecology.*

1949 Spencer, K. A., B.A., F.R.E.S., 19, Redington Road, London, N.W.3. *l, d.*

1947 Sperring, A. H., Slindon, Fifth Avenue, Warblington, Hants. *l.*

1956 Spoczynska, Mrs. J. O. I., 89, Harlestone Road, St. James', Northampton. *l.*

1943 Spreadbury, W. H., 3, Sherwood Road, Seaford, Sussex. *nat. hist.*

1953 Stallwood, B. R., 17, Claremont Avenue, Sunbury-on-Thames, Middlesex. *l.*

1949 Stanley, F. C., F.R.E.S., "Swanmore", Bowes Hill, Rowlands Castle, Hants. *l, c.*

1927 Stanley-Smith, F., "Hatch House", Pilgrims Hatch, Brentwood, Essex. *l.*

1958 Stewart, R. H. A., B.A., Downs House Flat, Highfield, Lymington, Hants. *l.*

1942 Stidston, Eng. Capt. S. T., R.N., F.R.E.S., "Ashe", Ashburton, Devon. *l.*

1955 Stockley, R. E., 18 Leighton Gardens, Sanderstead, Surrey. *l.*

1952 Storace, Luciano, Museo Storia Naturale, Via Brigata Liguria, 9, Genoa, Italy. *l.*

1945 Stoughton-Harris, G., M.A., F.C.A., F.R.E.S., "Rosegarth", Waldens Road, Horsell, Woking, Surrey. *l.*

1948 Struthers, F. M., 143a, Gander Green Lane, Cheam, Surrey. *l.*

1929 Stubbs, G. C., Egremont House, Ely, Cambs., and Survey Office, Kuala Lumpur, Malaya.

1934 Sutton, Gresham R., 6, Kenilworth Gardens, Loughton, Essex. *l, c.*

1950 Swain, H. D., M.A., F.R.E.S., 47, Dryburgh Road, Putney, S.W.15. *l, hy, c, hem.*

1950 Symes, H., M.A. (OXON), 52, Lowther Road, Bournemouth, Hants. *l.*

1916 Syms, E. E., F.R.E.S., F.Z.S., 22, Woodlands Avenue, Wanstead, London, E.11. *n, orth, od, t.*

YEAR OF ELECTION.

1942 Talbot de Malahide, The Lord, C.M.G., Malahide Castle, Dublin, Ireland. *l.*
1922 Tams, W. H. T., F.R.E.S., *Council*, 20, Ranelagh Avenue, Fulham, London, S.W.6. *ent.*
1950 Taylor, A. S., 364, Burley Road, Leeds 4. *l.*
1941 Taylor, H. G., 11, Old Forge Way, Sidcup, Kent. *l.*
1958 Taylor, R. C., Vinnicks Cottage, Highclere, nr. Newbury, Berks. *l.*
1949 Temple, Miss Vere, F.R.E.S., King's Chase, Tollard Royal, Salisbury, Wilts. *l, hym, orth, od.*
1952 Thorn, Miss B. A., "Paviott", 16, Springfields, Broxbourne, Herts. *l.*
1952 Thornton, J., 43, Barnes Street, Clayton-le-Moors, Accrington, Lancs. *l.*
1950 Thorpe-Young, D. W., A.I.A.C., F.Z.S., 11, Waverley Way, Carshalton Beeches, Surrey. *ent.*
1956 Tidmarsh, A. C. B., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l.*
1956 Tidmarsh, J. S. C., Furzefield, West End Lane, Nr. Haslemere, Surrey. *l.*
1945 Timms, C., F.R.E.S., 524a, Moseley Road, Birmingham 12. *d.*
1953 Torlesse, Rear Admiral A. D., C.B., D.S.O., Trentham, Burton Joyce, Notts. *l.*
1948 Torstenius, Stig, Foreningsvägen 10, Stocksand, Sweden. *l.*
1950 Trought, Trevor, M.A., F.R.E.S., Brookland, Tysoe, Warwickshire. *l.*
1948 Trundell, E. E. J., "Camilla", Bowesden Lane, Shorne Ridgway, Gravesend, Kent. *ent, l.*
1948 Tubbs, Mrs M., 9, Lingfield Road, Wimbledon Common, S.W.19. *rh.*
1947 Tubbs, R. S., O.B.E., F.R.I.B.A., 9, Lingfield Road, Wimbledon Common, S.W.19. *rh.*
1934 Tunstall, H. G., 11 St. James Avenue, Ewell, Surrey. *l.*
1940 Turner, A. D., 19, Manor Close, Kingsbury, London, N.W.9. *ent.*
1948 Turner, A. H., F.Z.S., F.R.E.S., F.R.MET.S., Forest Drove, Bickenhall, Hatch Beauchamp, Taunton, Somerset. *ent, insect migration, conchology.* (*Life Member.*)
1944 Turner, H. J., 4, Browning Avenue, Boscombe, Nr. Bournemouth, Hants. *l.*
1953 Tweedie, M. W. F., M.A., C.M.Z.S., *Council*, Houghton House, Rye, Sussex. *l.*

1952 Uffen, R. W. J., F.R.E.S., 4, Vaughan Avenue, Stamford Brook, W.6. *l, hym, d.*

1945 Valentine, Arthur, Ivey House, West Shepton, Shepton Mallet, Somerset. *ent.*

1922 VALLINS, F. T., A.C.I.I., F.R.E.S., *President*, 4, Tattenham Grove, Tattenham Corner, Epsom, Surrey. *Lycaenidae.* (*Life Member.*)

1951 VARLEY, Prof. G. C., M.A., PH.D., F.R.E.S., F.Z.S., Hope Dept. of Entomology, University Museum, Oxford. *hym, d.*

1951 VIETTE, P. E. L., Paris Museum (Entomology), 45 bis, Rue de Buffon, Paris 5, France. *l.*

1949 WADE, D., 17, Waldegrave Avenue, Holderness Road, Hull, Yorks. *l, orn.*

1929 WAINWRIGHT, CHARLES, B.SC., F.R.I.C., 42, St. Bernards Road, Olton, Warwickshire. *l.*

1911 WAKELY, Sir LEONARD D., K.C.I.E., C.B., 37, Marryat Road, Wimbledon, London, S.W.19. *l.*

1947 WAKELY, L. J. D., O.B.E., M.A., Office of the High Commissioner of the United Kingdom, Accra, Ghana. *l.*

1930 WAKELY, S., 26, Finsen Road, Ruskin Park, London, S.E.5. *l.*

1951 WALKER, D. H., B.SC. (ENG.), A.M.I.C.E., "Bellargus", Elmfield Way, Sanderstead, Surrey. *l.*

1953 WALLIS, J. L. P., A.R.I.C.S., C.E. in C. Dept., Admiralty, Chamberlain Way, Pinner, Middx.

1935 WALLIS-NORTON, Capt. S. G., 2 Victoria Mansions, Eastbourne, Sussex. *ent.* (*Life Member.*)

1956 WARD, W. J. V., B.A., A.R.C.SC., "Haslemere", 23, Darlington Road, Stockton-on-Tees, Durham. *l.*

1936 WARRIER, R. EVERETT, 99, Braidwood Road, London, S.E.6. *l.*

1939 WATKINS, N. A., M.A., F.R.E.S., Soldon, Druid Road, Stoke Bishop, Bristol 9, Glos. *l.*

1945 WATKINS, O. G., F.R.E.S., 20, Torr View Avenue, Peverell, Plymouth, Devon. *l, od.*

1945 WATSON, R. W., F.R.E.S., "Porcorum", Sandydown, Boldre, nr. Lymington, Hants. *l.*

1926 WATTS, W. J., 6, Capel Terrace, Southend-on-Sea, Essex. *c.*

1947 WEAL, R. D., 124, Marmion Avenue, South Chingford, London, E.4. *c.*

1945 WEBB, HARRY E., F.R.E.S., 20, Audley Road, Hendon, London, N.W.4. *l.*

1957 WEBB, N. G. G., Fernshaw, Rockfield Road, Oxted, Surrey. *l.*

1945 WEDDELL, B. W., 13, The Halve, Trowbridge, Wilts. *ent.*

1953 WEST, B. B., 1, Pond Square, London, N.6. *l, od.*

1947 WEST, B. K., Slim School (F.A.R.E.L.F.), Cameron Highlands, Malaya. *l.*

1945 WHEELER, A. S., 26, Ashurst Road, Tadworth, Surrey. *l.*

1948 WHICHER, L. S., F.R.E.S., A.I.AE.E., 6, Chisholm Road, Richmond, Surrey. *c.*

1958 WHITE, G. B., 65, Virginia Road, Thornton Heath, Surrey. *ent., orn.*

1954 Whitehead, J., 16, Westbourne Arcade, Bournemouth, Hants. *l.*

1946 Whitehorn, K. P., F.R.E.S., "Spindles", Windsor Road, Gravesend, Kent. *l.*

1920 Wightman, A. J., F.R.E.S., 67, The Spinney, Pulborough, Sussex. *l (noctuae).*

1958 Wilding, N., 66, Brabourne Rise, Beckenham, Kent.

1946 Wildridge, W., "Flavion", Penn Road, Park Street, Nr. St. Albans, Herts. *ent.*

1955 Wilkinson, C., F.Z.S., F.R.E.S., "Sandbank", Thurlestone, Nr. Kingsbridge, S. Devon. *l.*

1945 Williams, E. F., F.R.E.S., Gresham Cottage, Cornsland, Brentwood, Essex. *l.*

1957 Williams, E. O., M.A., F.R.C.S., M.R.C.O.G., "Bonners", Hambledon, Surrey. *l.*

1948 Williams, L. H., PH.D., B.SC., 31, Armour Road, Tilehurst, Reading, Berks. *ent.*

1932 Williams, S. W. C., 17, Beresford Road, Chingford, London, E.4. *l.*

1951 Wood, E. F., 18, Nursery Road, Prestwich, near Manchester, Lancs. *l.*

1956 Woodward, R. J., 65, Valleyfield Road, Streatham, S.W.16. *rh.*

1927 Worms, C. G. M. de, M.A., PH.D., F.R.I.C., F.R.E.S., M.B.O.U., "Three Oaks", Shore's Road, Horsell, Woking, Surrey. *l, orn.*

1957 Wright, A. E., 9, Albert Court Mansions, Kensington, London, S.W.7. *rh, esp. Satyridae.*

1955 Wright, David, Whitehill House, Whitehill, Bordon, Hants. *l.*

1949 Wrightson, A. L., 93, Morse Street, Lower Brunshaw, Burnley, Lancs. *l.*

1945 Wykes, N. G., Carter House, Eton College, Windsor, Berks. *l.*

1957 Yano, J., c/o Iwai & Co., Capel House, 54, New Broad Street, London, E.C.2. *rh.*

1945 Youden, George H., F.R.E.S., 18, Castle Avenue, Dover, Kent. *l*

1950 Young, Miss G. M., 30, Cranley Gardens, Palmers Green, London, N.13. *l.*

1952 Young, L. D., 55 , Ottways Lane, Ashtead, Surrey. *ent.*

Members will greatly oblige by informing the Hon. Secretary of any errors in, additions to, or alterations required in the above addresses and descriptions.

Geographical List of Members arranged under Country, County and Town in Alphabetical Order

---

ENGLAND.

BEDS.

Leighton Buzzard.

Reid, J. F.

BERKS.

Finchampstead.

Hyde, R. A.

Mortimer.

Easton, N. T.

Newbury.

Saundby, R. H. M. S.
Taylor, R. C.

Reading.

Baker, B. R.
Dolton, H. L.
Williams, L. H.

Sunninghill.

Southwood, T. R. E.

Wallingford.

Newman, D. E.

Wantage.

Smith, F. W.

Windsor.

Halstead, D. G. H.
Wykes, N. G.

BUCKS.

Beaconsfield.

Carter, W. A. C.

Bletchley.

Kershaw, S. H.
Richardson, N. A.

Chalfont St. Giles.

Smith, F. G.

Chalfont St. Peter.

Ansorge, E.

High Wycombe.

Oliver, G. B.
Oliver, G. H. B

Newport Pagnell.

Cripps, C. H.

CAMBS.

Cambridge.

Carter, R. A.
Gardiner, B. O. C.
McCleery, C. H.
Raven, C. E.
Rivers, C. F.
Storey, W. H

Ely.

Harvey, J. G.

Wisbech.

Elgood, W. S.

CHESHIRE.

Caldy.

Clarke, C. A.

Nantwich.

Boyes, J. D. C.

Northwich.

Crewdson, R. C. R.

Wilmslow.

Kloet, G. S.

Wirral.

Hardy, D. E.

CORNWALL.

St. Just.

Gyselman, Y. P.

CUMBERLAND.

Brampton.

Johnson, G. F.

Penrith.

Davidson, W. F.
Hervey, G. A. K.

DERBYSHIRE.

Derby.

Atherley, Miss M.

Shardlow.

Cooper, B. A.

DEVON.

Ashburton.

Kennard, H. A.
Stidston, S. T.

Axminster.

Bliss, A.

Bishops Teignton.

Coleridge, W. L.

Exeter.

Feilden, G. St. C.

Kingsbridge.

Wilkinson, C.

- *Plymouth.*
  - Watkins, O. G.
- *Sampford Peverell.*
  - Lyon, F. H.
- *Torquay.*
  - Lees, F. H.
- *Totnes.*
  - Atkinson, J. L.

DORSET.

- *Blandford.*
  - Pring, M.
- *Broadmayne.*
  - Philpott, V. W.
- *Charmouth.*
  - Goodden, R. C.
- *Dorchester.*
  - Lisney, A. A.

DURHAM.

- *Chester-le-Street.*
  - Dunn, T. C.
- *Darlington.*
  - Moon, H. N.
- *Gateshead.*
  - Montgomery, J. R. P.
- *Stockton-on-Tees.*
  - Ward, W. J. V.
- *Sunderland.*
  - Jefferson, T. W.

ESSEX.

- *Brentwood.*
  - Stanley-Smith, F.
  - Williams, E. F.
- *Colchester.*
  - Blaxill, A. D.
  - Firmin, J.
  - Pearce, C. J.
  - Pearson, A. J. R.
- *Harlow.*
  - Forster, H. W.
- *Hornchurch.*
  - Rawlings, C. J.
- *Loughton.*
  - Lockington, N. A.
  - Payne, R. M.
  - Sutton, G. R.
- *Mistley.*
  - Rose, I. C.
- *Rayleigh.*
  - More, D.
- *Shenfield.*
  - Friedlein, A. F. E.
- *Southend-on-Sea.*
  - Watts, W. J.
- *Southminster.*
  - Dewick, A. J.
- *Thorpe Bay.*
  - Johnson, F. L.
- *Waltham Abbey.*
  - Sculthorp, A. H.
- *Westcliff-on-Sea.*
  - Huggins, H. C.

GLOS.

- *Bristol.*
  - Bell, C. L.
  - Campbell, A. M. L.
  - Hinton, H. E.
  - Watkins, N. A.
- *Gloucester.*
  - Redgrave, A. C. R
- *Minchinhampton.*
  - Richardson, A.
- *Stroud.*
  - Demuth, R. P.
- *Tetbury.*
  - Newton, J.

HANTS.

- *Alton.*
  - May, J. T.
- *Andover.*
  - Maxwell, R. M.
- *Basingstoke.*
  - Goodliffe, F. D.
- *Bishopstoke.*
  - Ray, H.
- *Bordon.*
  - Schofield, C. H.
  - Wright, D.
- *Bournemouth.*
  - Curtis, W. P.
  - Fraser, F. C.
  - Symes, H.
  - Turner, H. J.
  - Whitehead, J
- *Brockenhurst.*
  - Burgess, L. W.
- *Burley.*
  - Mackworth-Praed, C. W
- *Christchurch.*
  - Barton, B. C.
- *Fareham.*
  - Burns, B. S.
- *Farnborough.*
  - Parfitt, R. W.
- *Fleet.*
  - Richards, A. W
- *Fordingbridge.*
  - Burton, P. J.
- *Lee-on-Solent.*
  - Downes, A. S.
- *Liss.*
  - Brooke, W. M. A

- *Lymington.*
  - Farwell, I. G.
  - Stewart, R. H. A.
- *Micheldever.*
  - Dixon, C. H.
- *Minstead*
  - Siggs, L. W.
- *North Warnborough.*
  - Potter, N. B.
- *Portsmouth.*
  - Langmaid, J. R.
- *Romsey.*
  - Ransome, A. L.
- *Rowlands Castle.*
  - Stanley, F. C.
- *St. Ives.*
  - Dollimore, G. F.
- *Sandy Down.*
  - Watson, R. W.
- *Warblington.*
  - Sperring, A. H.
- *Winchester.*
  - Blyth, S. F. P.
  - ffennell, D. W. H.

HEREFS.

- *Ross on-Wye.*
  - Knight, J. E.

HERTS.

- *Arkley.*
  - Howarth, H.
  - Howarth, T. G.
- *Barnet.*
  - Calderara, P.
- *Bishop's Stortford.*
  - Allan, P. B. M.
  - Ashwell, D. A.
  - Craufurd, C.
  - Mellows, C.
- *Broxbourne.*
  - Thorn, B. A.
- *Harpenden.*
  - Crow, P. N.
- *Kings Langley.*
  - Dunk, H. C.
- *Redbourn.*
  - Bowden, S. R.
- *St. Albans.*
  - Byers, F. W.
  - Edwards, G. G.
  - Wildridge, W.
- *Tring.*
  - Goodson, A. L.
- *Watford.*
  - Lydgate Bell, H. G.

I. OF WIGHT.

- *Freshwater.*
  - Knill-Jones, R. P.

KENT.

- *Ashford.*
  - Cue, P.
  - Duffield, C. A. W
  - Rudland, W. L.
  - Scott, E.
- *Aylesford.*
  - Davis, G. A. N
- *Beckenham.*
  - Lane, A. W.
  - Wilding, N.
- *Bexley.*
  - Ford, L. T.
- *Borough Green.*
  - McDermott, C. A
- *Boxley.*
  - Frazer, J. F. D.
- *Broadstairs.*
  - Harbottle, A. H. H
- *Bromley.*
  - Cox, W. A. A.
  - Jacobs, S. N. A
- *Dartford.*
  - Hare, E. J.
- *Ditton.*
  - Jenner, D.
  - Llewelyn, J. R
- *Dover.*
  - Youden, G. H.
- *East Malling.*
  - Massee, A. M.
- *Folkestone.*
  - Morley, A. M.
  - Self, K. W.
- *Gravesend.*
  - Trundell, E. E. J.
  - Whitehorn, K. P
- *Littlebourne.*
  - Marsh, D. G.
- *Maidstone.*
  - Grant, F. T.
  - Phillips, A.
- *Orpington.*
  - Gowing-Scopes, E
  - Line, H. V.
- *Otford.*
  - Manley, W. B. L
- *Ramsgate.*
  - Lanfear, A. H
- *Sevenoaks.*
  - Busbridge, W. E
  - Coxon, G. F.
- *Shortlands.*
  - Morris, M. G.

Sidcup.
Ling, R. B.
Taylor, H. G. W.
St. Mary Cray.
Chatelain, R. G.
Tunstall
Allen, P. V. M.
Westerham.
Edwards, R. C.
Newman, L. H.
West Malling.
Painter, H. L.
West Wickham.
Chalmers-Hunt, J. M.
Owen, G. V.
Wilmington.
Honeybourne, T. J.

LANCS.

Accrington.
Thornton, J.
Blackburn.
Bryce, D.
Bolton.
Coxey, S.
Burnley.
Wrightson, A. I.
Formby.
Leech, M. J.
Grange-over-Sands.
Heath, J.
Manchester.
Michaelis, H. N.
Wood, E. F.
Nelson.
Jopson, F. L.
Southport.
Greenwood, K. C.

LEICESTERSHIRE.

Market Harborough.
Buckler, H. A.
Stoke Golding.
Murray, D. P.

LINCS.

Grantham.
Platts, J. H.
Grimsby.
Jeffs, G. A. T.
Market Rasen.
Court, T. H.
Scunthorpe.
Gooseman, M. P.

LONDON.

E.4. *Chingford.*
Pinniger, E. B.
Shaw, R. G.
Weal, R. D.
Williams, S. W. C.
E.7. *Forest Gate.*
Baxter, L. N.
Baxter, R. N.
E.11. *Wanstead.*
Butterfield, A. W
Syms, E. E.
E.C.2. *City.*
Yano, J.
N.1. *Canonbury*
Buck, F. D
N.3. *Finchley.*
Griffiths, G. C. D
N.6. *Highgate.*
West, B. B.
N.12. *Finchley.*
Cross, G. S. E.
N.13. *Palmers Green.*
Young, G. M.
N.20. *Whetstone.*
Lorimer, R. I
Lovell, R.
N.W.1. *Regent's Park.*
Hemming, A. F.
N.W.3. *Hampstead.*
Carter, C. I.
Keith-Johnston, C.
Spencer, K. A.
N.W.4. *Hendon.*
Webb, H. E.
N.W.6. *Hampstead.*
Hillaby, J. D.
N.W.7. *Mill Hill.*
Goater, B.
Howard, A. P.
N.W.8. *Regent's Park.*
Ashby, G. J.
Leston, D.
N.W.9. *Kingsbury.*
Turner, A. D.
S.E.2. *Abbey Wood.*
Showler, A. J.
S.E.3. *Blackheath.*
Gould, A. W.
S.E.5. *Ruskin Park.*
Wakely, S.
S.E.6. *Catford.*
Nolde, W. F.
Warrier, R. E.
S.E.8. *Deptford.*
Murray, E. G.
S.E.18. *Plumstead.*
Ashby, F. A.
Hards, C. H.
Popham, W. J.

S.E.21. *Dulwich.*
Aston, A. E.
Dillon, T. J.
Matheson, I. C. C.

S.E.23. *Forest Hill.*
Cornelius, J. A.

S.E.24. *Herne Hill.*
Imber, S. F.

S.E.25. *South Norwood.*
Lewis, E.
Nissen, C. L.

S.E.27. *W. Norwood.*
Skinner, B. F.

S.W.1. *Westminster.*
Gordon, D. J.
Harrison-Gray, M.
Manley, G. E. L.
Marsh, J. C. S.
Matthews, D. P. L.
Prideaux, A. G.

S.W.6. *Fulham.*
Richards, R. F.
Tams, W. H. T.

S.W.7. *S. Kensington.*
Evans, E.
Richards, O. W.
Roche, C. G.
Wright, A. E.

S.W.11. *Battersea.*
Mansell, G. H.

S.W.13. *Barnes.*
Hodgkinson, A.

S.W.15. *Putney.*
Swain, H. D.

S.W.16. *Streatham.*
Christie, J.
Christie, L.
Woodward, R. J.

S.W.17. *Tooting.*
Allen, D. M.

S.W 18. *Wandsworth.*
Hall, D. G.
Michaud, J.

W.6. *Hammersmith.*
Uffen, R. W. J.

W.8 *Kensington.*
Craske, R. M.

W.9. *Maida Hill.*
Peters, W.

W.11. *Notting Hill.*
Pollak, P. M.

W.C.1. *Holborn.*
Feilden, G. St. Clair.
Janson, D. B.

MIDDLESEX.

Eastcote.
Goodban, B. S.

Enfield.
Eagles, T. R.

Harrow.
Riordan, B. D.

Hayes.
Moppett, A. A.

Hounslow.
Gerard, B. McC.

Isleworth.
Bradley, J. D.
Classey, E. W.
Hanson, S. M.

Pinner.
Minnion, W. E.
Saunders, J. M. K.
Wallis, J. L. P.

Ruislip.
Alford, D. V.
Stanmore.
Harris, W. H. A.
Sunbury.
Stallwood, B. R.
Teddington.
Ferguson, L. F.

NORTHANTS.

Kettering.
Phillips, J. H. C.
Northampton.
Spoczynska, J. O. I.
Peterborough.
Pooles, S. W. P.
Roade.
Humphrey, S. W.
Wellingborough.
Gent, P. J.
Payne, J. H.

NOTTS.

Burton Joyce.
Torlesse, A. D.

OXFORDSHIRE.

Blackthorne.
Moore, D. R.
Oxford.
Bailey, K. E. J.
Ford, E. B.
Kettlewell, H. B. D.
Varley, G. C.

SHROPSHIRE.
Wellington.
James, B. C.

SOMERSET
Burnham-on-Sea.
Heslop, E. A.
Heslop, I. R. P.
Frome.
Cruttwell, G. H. W.
Taunton.
Turner, A. H.
Weston-super-Mare.
Blathwayt, C. S. H.
West Shepton.
Valentine A.

SUFFOLK.
Ipswich.
Barham, C. S.
Beaufoy, S.
Jacoby, M. C.
Stowmarket.
Chipperfield, H. E.

SURREY.
Addiscombe.
Bush, D. J. B.
Ashtead.
Brush, H. J.
Young, L. D.
Banstead.
Gardner, A. E.
Last, H. R.
Perry, K. M. P.
Rumsey, F.
Carshalton.
Groves, E. W.
Carshalton Beeches.
Thorpe-Young, D. W.
Cheam.
Struthers, F. M.
Chiddingfold.
Mere, R. M.
Chipstead.
Bolton, E. L.
Chobham.
Lawson, P. H.
Churt.
Baker, J. A.
Claygate.
Maitland-Smith, G.
Perkins, J. F.
Clevedon.
Bird, H. W.
Cobham.
Purefoy, J. B.
Coulsdon.
Denvil, H. G.
Ferrier, W. J.
Coulsdon (Old).
Britten, H.
Cranleigh.
Collier, A. E
Dorking.
Cole, G. A.
Haynes, R. F.
Howard, J. O. T.
Epsom.
Vallins, F. T.
Esher.
Brett, G. A.
Ennis, L. H.
Short, H. G
Ewell.
Baker, D. B.
Tunstall, H. G.
Fetcham.
Hickin, N. E.
Frensham.
Gurdon, J. B
Guildford.
Garland, W. A
Hambledon.
Williams, E. O.
Haslemere.
Tidmarsh, A. C. B.
Tidmarsh, J. S. C.
Kingswood.
Agassiz, D. J. L.
Leigh.
Fairclough, R.
Merton Park.
Coulson, F. J.
Luff, M. L.
Ottershaw.
Bretherton, R. F.
Parsons, R. E. R.
Oxted.
Webb, N. G. G.
Pirbright.
Lawson, H. B.
Purley.
Henderson, J. L.
Richmond.
Phelps, C. C.
Whicher, L. S.
Sanderstead.
Russwurm, A. D. A.
Stockley, R. E.
Walker, D. H.
Selsdon.
Foster, T. B.
Stoneleigh.
Hutchings, H. R

- *Sutton.*
  - Bolingbroke & St. John
  - Danby, G. C.
  - Frohawk, M. J.
  - Summers, E. J.
- *Tadworth.*
  - Wheeler, A. S.
- *Thornton Heath.*
  - Parmenter, L.
  - White, G. B.
- *Tilford.*
  - Ellison, E. F. D.
  - Ellison, R. Eldon.
- *Wallington.*
  - Brown, F. C.
  - Niblett, M.
- *Weybridge.*
  - Beesley, W. N.
  - Best, A. A.
- *Wimbledon.*
  - Dacie, J. V.
  - Hawkins, C. N.
  - Jarvis, C. McK.
  - Martin, M. E.
  - Riley, N. D.
  - Tubbs, M.
  - Tubbs, R. S.
  - Wakely, L. D.
- *Witley.*
  - Messenger, J. L.
- *Woking.*
  - Greenwood, J. A. C.
  - Stoughton-Harris, G.
  - Worms, C. G. M. de.
- *Worcester Park.*
  - Friend, M. J.
  - Hyde-Wyatt, B.
  - Richardson, A. E.

SUSSEX.

- *Arundel.*
  - Haggett, G. M.
- *Billingshurst.*
  - Curtis, A. E.
  - Marcon, J. N.
- *Bognor Regis.*
  - Clark, J.
  - Jarvis, F. V. L.
- *Brighton.*
  - Banner, J. V.
  - Dyson, R. C.
- *Chichester.*
  - Boyce, B.
- *Eastbourne.*
  - Wallis-Norton, S. G.
- *East Preston.*
  - Higgins, W. J.
- *Ferring-by-Sea.*
  - Menzies, I. S.
- *Hastings.*
  - Astbury, C F
  - Homer, T. J. G
- *Horsham.*
  - Langton, P. H.
- *Horsted Keynes.*
  - Hoare-Ward, J. W
- *Hove.*
  - Savage, L. E.
- *Littlehampton.*
  - Jay, E. P.
- *Newick.*
  - Embry, B.
- *Pulborough.*
  - Odd, D. A.
  - Robertson, G. S.
  - Wightman, A. J.
- *Ringmer.*
  - Gully, J. G.
- *Rye.*
  - Tweedie, M. W. F.
- *Seaford.*
  - Spreadbury, W. H.
- *Wisborough Green.*
  - McClure, A. M.
- *Worthing.*
  - Edwards, F. H.

WARWICKSHIRE.

- *Birmingham.*
  - Blunt, W. H.
  - Bowater, W.
  - Cadbury, E. B.
  - Evans, L. J.
  - Hammond, H. E.
  - Noble, F. A
  - Peet, T. N. D.
  - Siviter Smith, P.
  - Timms, C.
- *Olton.*
  - Wainwright, C.
- *Solihull.*
  - Allen, D.
  - Carlier, S. E. W.
  - Price, G. C.
- *Tysoe.*
  - Trought, T.

WESTMORLAND.

- *Kendal.*
  - Birkett, N. L.

WILTS.

- *Salisbury.*
  - Temple, V.
- *Tilshead.*
  - Gillman, H. C. R.

Trowbridge.
Weddell, B. W.
Warminster.
Jackson, R. A.

WORCESTERSHIRE.
Redditch.
Latham, F. H.
Stanton.
Burton, R. J.

YORKS.
Bradford.
Haxby, C. R.
Doncaster.
Hyde, G. E.
Dronfield.
Fearnehough, T. D
Hull.
Wade, L.
Leeds.
Newton, J. L
Taylor, A. S.
Sheffield.
Reid, W.
Shipley.
Hewson, F.
Kemp, J. K. C.

IRELAND.

CO. DUBLIN
Dublin.
Talbot de Malahide.
Glenageary.
Baynes, E. S. A.

SCOTLAND.

ABERDEENSHIRE.
Aberdeen.
Morison, G. D.

DUMFRIES-SHIRE.
Collin.
Balfour-Browne, W. A. F.
Dumfries.
Cunningham, D.

FIFE.
St. Andrews.
Jackson, D. J.

INVERNESS-SHIRE.
Newtonmore.
Harper, G. W.
Harper, M. W.

MIDLOTHIAN.
Edinburgh.
Macnicol, D. A. B.
Pelham-Clinton, E. C.

WALES.

FLINTSHIRE.
Rhuddlan.
Ives, D. H.

GLAMORGAN.
Cardiff.
Hurworth, P.
Roche, P. J. L.
Porthcawl.
Morgan, H. D.

CHANNEL ISLANDS.

Guernsey.
Smith, D. S.

ABROAD.

EUROPE.
Austria.
Klimesch, J.
Czeckoslovakia.
Polacek, V. B.
Denmark.
Carolsfeld-Krause, A. G.
Olsen, E. T.
France.
Herbulot, C.
Viette, P. E. L.
Germany.
Lipscomb, C. G.
Italy.
Storace, L.
Sweden.
Torstenius, S.

AFRICA.
Ghana.
Wakely, L. J. D.

Kenya.
Sevastopulo, D. G.
Nigeria.
MacNulty, B. J.
Rhodesia.
Akester, W. J.
Daly, D. W.
Tanganyika.
Dudbridge, B. J.
Uganda.
McCrae, A. W. R.
Zululand.
Fraser, R. A.

AMERICA.
Argentina.
Hayward, K. J.
Connecticut (U.S.A.).
Gifford, W. S.
New York (U.S.A.)
Klots, A. B.

ASIA.
Hong Kong.
Burkhardt, V. R
India.
Sharman, A. Y.
Iran.
Robinson, P. J. M
Japan.
Asahina, S.
Malaya.
Robinson, H. S
Stubbs. G. C.
West, B. K.

AUSTRALIA.
New South Wales.
O'Farrell, A. F
Tasmania.
Couchman, L. E
Victoria.
Moore, B. P
Hall, S. S.

COUNCIL'S REPORT FOR 1958

Another satisfactory year is reported by your Council. There has been a slight increase in the number of members since last year. On 31st December 1958 there were 2 Honorary, 3 Special Life, 15 Life, 225 Ordinary and 260 Country Members, a total membership of 505. During the year 6 members died: they were Canon T. G. Edwards and Messrs. J. C. B. Craske, H. A. Leeds, R. Prichard, P. Robson and J. W. Saunt. Twenty-five new members joined the Society in 1958, 7 resigned and 6 whose subscriptions were overdue were struck off.

At the very end of the year we received the sorrowful news of the death of one of the Society's Trustees, Mr. W. Rait-Smith, after a long illness. Thus the Society lost 7 members in all, and the membership becomes 504.

The Proceedings and Transactions for 1957 were published in October, so for the second year in succession members were able to receive them at the Annual Exhibition. The Honorary Editor is to be congratulated once again for his strenuous work in producing them with such nice timing. The volume consists of xli + 147 pages, 8 plates (3 coloured) and 31 text figures. Two of the coloured plates illustrated Part II of Mr. G. Haggett's *Larvae of the British Lepidoptera not figured by Buckler* and the other included 15 figures of the Eriocraniidae and Micropterygidae described in a paper by Mr. J. Heath, the latest contribution to the series being published by the Society on the British microlepidoptera.

Your Council gratefully acknowledges the receipt, through the Royal Society, of a Parliamentary Grant-in-aid of £200 towards the cost of production. Thanks are also extended to Mr. K. A. Spencer, who donated the 4 printing blocks of field meetings.

Owing to circumstances beyond his control, Mr. E. Gowing-Scopes was unable to continue to store our stock of Proceedings and Transactions. Fortunately the Company employing our Editor has space available and agreed to assist us in this respect. Our thanks are due to Mr. Gowing-Scopes for his help in the past and to Messrs. Potters Press Ltd.

The Annual Exhibition at Burlington House maintained a high standard, though there were probably fewer insects of outstanding interest on show than in most years. Diptera and Hymenoptera were the two Orders selected for special attention, but the number of exhibits was disappointing considering the number of members who are known to study the groups. An extremely interesting exhibit, which attracted much attention, was staged by the Zoological Society of London from specimens in their charge. Spiders, scorpions, millipedes and grasshoppers were on view from the Insect House, whilst the Reptile House exhibited no less than six species of chameleon, which provided an unexpected pleasure to an appreciative audience. Mr. W. H. T. Tams and Mr. T. G. Howarth again looked after the photography of the more noteworthy exhibits for illustration in the Proceedings, and we are most grateful to them. The Attendance Register was signed by 297 members and visitors.

Twenty-one Ordinary Meetings were held during the year in the rooms of the Junior Institution of Engineers, and your Council wishes to record their gratitude to members of the staff, who have always been most co-operative. We are again indebted to Mr. Howarth for an interesting and diverse programme of indoor meetings. Many of the speakers used the projectors to illustrate their talks, and much animated discussion was promoted. Distinguished visitors, whom we were very pleased to welcome at our meetings during the year, included Dr. S. L. Tuxsen from Copenhagen, Dr. E. Munroe from Ottawa, Dr. C. L. Remington from Newhaven, Connecticut, Dr. Hoberlande from Prague, and Dr. N. S. Obraztsov from New York. Exhibits and communications evenings have been started at 6.45 p.m., giving members that extra quarter of an hour in the library with their friends.

Mr. R. W. J. Uffen and Mr. S. Wakely were responsible for another attractive programme of field meetings, and our sympathies are with them when it is remembered how often their efforts were marred by unpleasant weather. We thank them both, and also all those who led meetings and submitted reports. In particular, thanks are extended to Mrs. Bretherton, Mrs. Loarridge, Mrs. Mere and Mrs. Odd, who so graciously provided tea at their homes afterwards. Twenty-seven meetings were held.

The Honorary Curator reports that the Andrews Collection of British Diptera has finally been transferred to a thirty drawer cabinet and has been catalogued. This notable addition to the Society's Collections numbers 1,365 species represented by 17,385 specimens. Work has also been completed on the King Collection of Lepidoptera and it is hoped that an early start will be made on the Leston Collection of Hemiptera, which is to be housed in one of the Wells cabinets.

During the year the following members have presented specimens:—Miss C. A. McDermott (Hymenoptera and Lepidoptera); Messrs. F. D. Buck (Coleoptera); A. E. Gardner (Lepidoptera); J. L. Henderson (Coleoptera); S. N. A. Jacobs (Coleoptera and Lepidoptera); R. M. Mere (Lepidoptera); H. G. Tunstall (Lepidoptera and Trichoptera); and S. Wakely (Lepidoptera). The thanks of the Society are due to these members for the valuable additions to our collections.

The Honorary Librarian reports that during 1958 many of the Society's loose parts of overseas periodicals have been bound. The arrangements have been made by Mr. F. T. Vallins. Distinctive coloured bindings have been chosen for each series and when the books are on the shelves they will improve the appearance of the book cases and, it is hoped, lead members to take more interest in the work of overseas entomologists.

This year again the Society has benefited by bequests and gifts. Among a number of books left us by Canon T. G. Edwards are the important work *John Ray, Naturalist*, by our member, Canon C. E Raven, the first edition of Frohawk's *Varieties of British Butterflies*, Barrett-Hamilton's *History of British Mammals* and *The Butterfly Fauna of Ceylon*, by L. G. O. Woodhouse. In his lifetime Canon Edwards was generous to us and early this year he gave us a copy of a newly issued work, *Butterflies of the Indian Region*, by M. A. Winter Blyth.

A most noteworthy gift came from Dr. G. S. Robertson—a complete set of Fowler's *Coleoptera of the British Isles*, the large paper edition with coloured plates. This scarce and valuable work is much consulted by coleopterists and a second set is very welcome. Mr. W. H. Spreadbury has given us two books of special interest to Londoners—one dealing with Hampstead Heath and the other with Hitchin. Our set of the Royal Entomological Society's Handbooks for the Identification of British Insects is being kept up as each new item is published, and Mr. S. N. A. Jacobs has helped by donating a copy of the one by G. E. J. Nixon on a section of the Proctotrupoidea (Hym.).

It is always with pride that we add to the Library books written by our members. Our President, Dr. N. E. Hickin, has given his little book on Woodworm. Naturally, he concentrates on the destruction of insects, but the book offers much biological information and covers a wider field than the title suggests. Messrs. George G. Harrap & Co., Ltd., sent us, with their compliments, a copy of a sumptuous book by Professor A. Klots, *The World of Butterflies and Moths*, one of the Living Nature series. From Tasmania another Member, Mr. L. E. Couchman, has sent us a copy of his compilation, *A Catalogue of the Tasmanian Lepidoptera—Rhopalocera.*

By purchase your Society has acquired *Collecting, Preserving and Studying Insects*. Harold Oldroyd; *Dwellers in Darkness—an Introduction to the Study of Termites*, S. H. Skaife; *British Millipedes (Diplopods)*, J. Gordon Blower; *Sommerfugle*, Wilhelm van Deurs; *Gallenboek*, W. M. Docters van Leeuwen; *Illustrations I, Pteridophyta to Papilionaceae*, the first of four volumes of drawings by Sybil J. Roles of the plants described in the Flora of Clapham, Tutin and Warburg; *Insect Migration*, C. B. Williams; *British Water Beetles, vol. III*, F. Balfour-Browne; *An Introduction to the Behaviour of Invertebrates*, J. D. Carthy, and *Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick, vol. III*, J. F. Gates Clarke.

From Uppsala, Folke Friden has sent us a copy of his treatise bearing on the energy requirements in the larval stage of Lepidoptera. It is in English, and all the 39 species studied occur in Britain. The title is *Frass-drop Frequency in Lepidoptera.*

Works added to the Library by purchase or exchange were:—*Entomologist*; *Entomologist's Monthly Magazine*; *Entomologist's Record*;

Entomologist's Gazette; Proceedings and Transactions, Royal Entomological Society of London; Journal and Transactions, Society for British Entomology; Canadian Entomologist; Entomological News; Tijdschrift voor Entomologie; Opuscula Entomologica; Zoologiska Bidrag; Mitteilungen der Münchener entomologischen Gesellschaft; Beiträge zur Entomologie; Lloydia; Transactions, Wisconsin Academy of Science; Proceedings of the Iowa Academy of Science; Fieldiana (Zoology); Bulletin et Annales de la Société Royale de Belgique; Essex Naturalist; London Naturalist and Bird Report; Proceedings, Isle of Wight Natural History Society; Proceedings, Lincolnshire Naturalist's Union; Transactions, Norfolk and Norwich Naturalist's Society; Natural History, New York; Smithsonian Institute Reports; Annali Museo Civico di Storia Naturale, Genova; Doriana; Tulane Studies in Zoology; Beiträge zur naturkundlichen Forschung in Sudwestdeutschland; Bulletin et Annales de la Société Entomologique de France; Annalen des Naturhistorischen Museums in Wien; Nachrichtenblatt der Bayerischen Entomologen; Fragmenta Entomologica; Bolletino Inst. Ent. Bologna; Bolletino del Laboratoria di entomologia agraria.

TREASURER'S REPORT for 1958

Again I am pleased to be able to present Accounts which I feel will be considered satisfactory, in most respects if not in all.

CAPITAL ACCOUNT.

In this there has been no movement since the end of the previous year beyond the crediting of 25 Entrance Fees and the transfer of the same to the Library Fund. But, if I may digress for a moment—this unchanged position will not remain long, for we are advised that our late Trustee and member, Mr. W. Rait-Smith, whose passing we heard of so recently, has bequeathed to the Society the sum of £250.

BALANCE-SHEET.

The market value of our securities at the end of the year was £2,287, or £103 more than at the beginning. There is little change in other items. We have over £50 more money in the bank, and owe the printers £30 less than at the end of 1957. The Accumulated Revenue, now standing at £429, shows a small decrease which I will explain later.

LIBRARY FUND.

Early in the year the needs of our library were considered in Council and it was decided to tackle the considerable arrears in the binding of volumes of periodicals, mainly from overseas, which have piled up since the end of the War. For this purpose the use of some of our accumulated income was authorised. At the same time members generally were invited to contribute by adopting a journal and paying the cost of binding the current volume, or part thereof. This appeal met with considerable response, and the Fund received £16 11s for bindings and a donation of £5 for the replacement of certain missing parts. A grant of £50 from the Accumulated Revenue, £55 from Current Income, with the Entrance Fees, covered the expenditure on books, binding, furniture and repairs, as detailed in the Account.

PUBLICATION FUND.

Always the greatest item of expense of the year, the cost of the production of the "Proceedings" amounted to £578 for the 1957 issue. This is £147 more than the 1956 issue cost, but that had no coloured illustrations. To pay for this the Fund had a very welcome allotment from the Royal Society of £200 from the Parliamentary Grant in Aid of Scientific Publications, £335 from Current Income, £31 11s from sales of publications, which includes a new item of £6 11s for extra copies of separates supplied to authors of papers in the 1956 issue, with the income from the Misses Chapman's gift of War Loan and some donations besides other gifts in kind.

INCOME AND EXPENDITURE ACCOUNT.

Interest amounted to £118 17s 8d in the first full year on our present investments. Subscriptions collected were £4 less than in 1957 on a slightly increased membership; a matter to be regretted and to which I would draw the attention of those who forgot to pay their dues in time. Expenses were very similar in amount and detail to those of the two previous years, and after the Grants to Special Funds mentioned above the surplus of Income over Expenditure was £42 19s 10d, thus almost replacing the £50 transferred to Library Fund.

Mr. Mere and Mr. Stoughton-Harris, the honorary Auditors of these Accounts, report that they find them to be correct. Our thanks are due to them for their kind offices.

BALANCE-SHEET at 31st December 1958.

Capital Fund—		
General	£2,043 18 1	
Publication	304 19 9	
		£2,348 17 10
Special Funds—		
Library	£108 15 8	
Publication	3 19 4	
		112 15 0
Subscriptions Paid in Advance		43 11 0
Sundry Creditors		356 19 6
Income and Expenditure Account—		
Balance at 1st January 1958	£436 9 4	
Less Transfer to Library Fund	50 0 0	
	386 9 4	
Add Excess of Income over Expenditure for the year	42 19 10	
		429 9 2
		£3,291 12 6

Note.—The Society's Books, Cabinets, Furniture, etc., are Insured for £2,000, and the Hon. Secretary's Office Equipment for £100.

Investments at Cost—		
General (including the Ashdown, Lachlan-Gibb, Lile, Robert Adkin, Fountaine, Hugh Main, Labouchere and Cockayne bequests).		
£591 15s 3d 3½% Conversion Stock	£545 11 6	
£600 0s 0d 2½% Consolidated Stock	417 17 0	
£850 0s 0d 4% Consolidated Stock	703 13 4	
£500 0s 0d 4½% Defence Bonds	500 0 0	
£400 0s 0d 3½% War Stock	271 16 0	
Publication (gift of the late Misses E. F. and L. M. Chapman in memory of their brother).		
£300 0s 0d 3½% War Stock	304 19 9	
		£2,743 17 7
Note.—Market Value at 31st December 1959—£2,287.		
Sundry Debtors		3 2 6
Cash at Bank—		
Deposit Account	£483 4 5	
Current Account	52 3 7	
		535 8 0
Cash in Hand		9 4 5
		£3,291 12 6

Audited and found correct.
R. M. MERE.
G. STOUGHTON-HARRIS, F.C.A.
22nd January 1959.

J. L. HENDERSON, Hon. Treasurer.

INCOME AND EXPENDITURE ACCOUNT—Year ended 31st December 1958.

Rent of Rooms, etc.	£138 18 0	
Insurance	2 3 0	
Gratuities	2 0 0	
Secretarial Expenses	82 10 8	
Treasurer's Expenses	6 10 2	
		£232 1 10
Subscriptions to Wicken Fen Fund, Footpaths Preservation Society, Ramblers' Association, National Trust, Field Studies Council and the Conservators of Oxshott Heath		7 9 0
Annual Exhibition Expenses		11 0 6
Grant to Publication Fund		335 0 0
Grant to Library Fund		55 0 0
Balance being Excess of Income over Expenditure for the year, carried to Balance Sheet ...		42 19 10
		£683 11 2

Subscriptions (arrears and current)		£564 13 6
Interest—		
£591 15s 3d 3½% Conversion Stock ...	£20 14 2	
£600 0s 0d 2½% Consolidated Stock ...	15 0 0	
£850 0s 0d 4% Consolidated Stock ...	34 0 0	
£500 0s 0d 4½% Defence Bonds ...	22 10 0	
£400 0s 0d 3½% War Loan	14 0 0	
Deposit Interest	12 13 6	
		118 17 8
		£683 11 2

CAPITAL ACCOUNT—Year ended 31st December 1958.

Transfer to Library Fund	£9 7 6
Balance at 31st December 1958	2,348 17 10
	£2,358 5 4

Balance at 1st January 1958	£2,348 17 10
Entrance Fees	9 7 6
	£2,358 5 4

LIBRARY FUND—Year ended 31st December 1958.

Purchases—			Balance at 1st January 1958		£109 2 1
Books, etc.	£56 3 5		Entrance Fees	£9 7 6	
Binding	71 13 6		Donations for Binding	16 11 0	
Furniture and Repairs thereto	8 8 0		Donations for Journals	5 0 0	
		£136 4 11	Grant from Accumulated Revenue	50 0 0	
Balance at 31st December 1958		108 15 8	Grant from Current Income	55 0 0	
					135 18 6
		£245 0 7			£245 0 7

PUBLICATION FUND—Year ended 31st December 1958.

Printing and Posting the "Proceedings and Transactions", 1957	£367 12 8		Balance at 1st January 1958		£4 3 7
Blocks and Printing—			Sales of "Proceedings"	£20 4 11	
Coloured Plates	183 7 6		Sales of Separates	6 11 3	
Half-tone and Line Plates	27 12 7		Sales of "A Guide to the Smaller British Lepidoptera"	4 14 10	
		£578 12 9			31 11 0
Balance at 31st December 1958		3 19 4	Interest—£300 0s 0d War Stock (The Misses E. F. and L. M .Chapman)		10 10 0
			Donations		1 7 6
			Grant-in-Aid from Royal Society		200 0 0
			Grant from Income and Expenditure Account		335 0 0
		£582 12 1			£582 12 1

REV. CANON T. G. EDWARDS, M.A., F.Z.S.

Canon Edwards passed away on the 26th April 1958, at the age of seventy. The interment was at West Norwood Cemetery on the 1st May, preceded by the funeral service at Holy Trinity Church, Tulse Hill, the Society being represented at these ceremonies by Messrs. F. T. Vallins and S. Wakely.

Owing to a severe illness in 1953, from which he never fully recovered, the Canon was unable latterly to attend many of the South London meetings, but made a point of seeing the Annual Exhibition except when prevented by ill-health.

Born at Newcastle-under-Lyme, Staffordshire, he had a very distinguished career at Cambridge University, where he took his B.A. in 1909 and M.A. in 1912. He took two "firsts" in Natural Science and his great interest in entomology was no doubt strengthened by the studies involved at this time.

In 1911 he was appointed Curate of Christ Church, Gipsy Hill, London. From 1917 to 1919 he served as Chaplain in the Forces, and saw service overseas with the troops in Palestine.

At the end of the war he was appointed Vicar of Emmanuel Church, West Dulwich, which post he filled for the following ten years. From 1929 to 1933 he was Vicar of Christ Church, Stone, Staffordshire, but then returned to London and became Vicar of Holy Trinity Church, Tulse Hill, which living he held until his severe illness in 1953 forced him to retire. After a partial recovery he volunteered to conduct the services at St. Stephen's Church and Emmanuel Church, Dulwich, when they were without a vicar, and continued these duties until he died.

Besides being Resident Canon and Treasurer of Southwark Cathedral he was also Chaplain of the Haberdashers' Company.

He joined the Society in 1941. An interesting paper which he read to the members on 12th February 1944 was entitled "Gregarious Larvae" and included some personal observations on the habits of the Continental Pine Processionary moth*.

Canon Edwards wrote two religious books entitled *Evolution and Christian Belief* (1939) and *The Guest-chamber* (1945). He also published a book in 1956 on the history of his old church—Holy Trinity, Tulse Hill—entitled *The Church on the Hill*.

His keen entomologcal interest manifested itself in various ways in his parochial work. For instance, new stained-glass windows were made to replace those destroyed in his church during the blitz. One of these windows depicted a symbolical design of the Creation and portrayed many animals. At his suggestion the likeness of a Camberwell Beauty was also incorporated. There was also an occasion when

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*1945, *Proc. S. Lond. ent. nat. Hist. Soc*, **1944-45** : 60-63.

REV. CANON T. G. EDWARDS.

he gave a talk to his parishioners about his adventures in the Holy Land while a Padre in the Forces. The title he chose was "Arabs and Scarabs", which enabled him to include entomological recollections of his observations of insect life.

One of the Archdeacons of Southwark Cathedral wrote about him as follows: "Canon Edwards was in some respects an unusual clergyman. He was an authority on moths and butterflies who had been known to carry his enthusiasm to the point of interrupting a conversation—or even some pastoral activity—to reach out a hand and gently capture an unfamiliar specimen".

The fact that he could never attend a Sunday Field Meeting and could hardly ever come on a Saturday must not lead anyone to imagine that he was not a keen field naturalist. Few people had more knowledge than he of the many haunts of *Maculinea arion* L. in North Cornwall and Devon, and in 1950 he showed me some of the places in which he had seen it years before and where to his delight it still occurred. In addition to the larger moths he was keenly interested in the microlepidoptera.

His regard for the "South London" was shown by the clause in his will which stated that the Society could have any of his entomological books and also specimens from his collection of Lepidoptera. Among a number of books thus added to the Society's library was a copy of the scarce first edition of Frohawk's *Varieties of British Butterflies*, and specimens of his microlepidoptera have also been added to the Society's collections.

S. W.

ABSTRACT OF PROCEEDINGS

INDOOR MEETINGS

13th FEBRUARY 1958.

The PRESIDENT in the Chair.

Group-Captain L. W. Burgess was declared elected a member.

EXHIBITS.

The PRESIDENT—Specimens of *Hylotrupes bajulus* (L.) (Col., Cerambycidae) showing the difference in size between males and females, also a block of wood used for ovipositing and for insecticide tests.

Dr. C. G. M. DE WORMS—Three series of *Ptilophora plumigera* Schiff. (Lep., Notodontidae) to illustrate regional variation in the male. One series from Wye, Kent, showed very few superficial cross band markings; another, from the Cotswolds, was a very large form with very pronounced cross band; the third was a small form from E. Suffolk, some of which resembled those from the Cotswolds, and others, those from Wye. The insect has a restricted range, being found only in Surrey, Kent, Sussex, Hants, Wilts., Dorset, Devon, Glos., Bucks, Oxon, Berks. and Suffolk.

Mr. R. FAIRCLOUGH—An example of *Depressaria prostratella* Const. taken in Ashdown Forest, Sussex, 31.viii.57, the first recorded specimen in Britain. The larva is stated to feed on *Genista prostrata* Lk. on the Continent; other food plants being *Sarothamnus scoparius* (L.) Wimmer (Broom) and *Ulex europaeus* L. (Gorse), and there is a specimen in the collection of the British Museum (Nat. Hist.) bred from a larva on *Centaurea*. The moth exhibited was identified by Mr. J. D. Bradley of the British Museum (Nat. Hist.).

Mr. S. N. A. JACOBS—Two specimens of *Depressaria prostratella* Const. from Jaca, Spain, and another from Digne, France, for comparison with the one exhibited by Mr. Fairclough. These specimens have been determined by M. Léon Lhomme, who in his catalogue (Vol. II, No. 3318, p. 750) gives the range as south and east France, July and August, and cites the larva as feeding on *Genista prostrata* Lk., *G. cinerea* D.C. (spun shoots), *G. scorpius* D.G., and *Ulex galii* Planchon, June and July.

Dr. B. P. MOORE—An example of *Polyphylla fullo* F. (Col., Scarabaeidae), a species featured in most of the older collections, and often considered a migrant. However, since the species still occurs on both the French and Belgian channel coasts feeding on roots in the sand dunes, and used to be taken sparingly in similar situations on the Kent coast, Dr. Moore thought that it was at one time a native of Kent on the extreme edge of its range, becoming extinct in the mid 1800's.

COMMUNICATIONS.

In his report the Librarian said the Society had purchased the Ray Society's second volume on British Spiders by G. H. Lockett and A. F. Millidge; "Insect Natural History" by A. D. Imms, No. 8 in the New Naturalist Series; "Flies of the British Isles" by C. N. Collyer and C. O. Hammond, a volume in the Wayside and Woodland Series; and part 3 of Vol. 8 in the Royal Entomological Society's Handbooks for the Identification of British Insects.

Mr. A. H. Sperring referred again to his breeding of *Gonodontis bidentata* Clerck. He said he was again experiencing winter emergences; one specimen had emerged on Christmas Day, two more during January and another the previous day (12th February). The breeding cage is kept practically in the open. In reply to a question Mr. Sperring said that the present stock was not the same strain as that from which he had previously bred.

An interesting talk was given by Mr. T. H. Savory, M.A., F.Z.S., on "The Webs of Spiders" which was well illustrated by slides and figures on the epidiascope, and was followed by many questions.

27th FEBRUARY 1958.

The President in the Chair.

Messrs. J. A. C. Greenwood, O.B.E., F.Z.S., H. L. Painter and J. P. Lait were declared elected members.

EXHIBITS.

The President—A case of Caddis flies from Uganda.

Mr. T. R. Eagles—Galls on twigs of *Forsythia intermedia* Zab. from Enfield, Middx. According to Prof. Dr. W. M. Docters van Leeuwen (1957, *Gallenboek*, p. 149, Zutphen), such galls are caused by a bacterium, *Agrobacterium tumefaciens* (Sm. et T.) Conn. (see also Eagles, 1957, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 49).

COMMUNICATIONS.

Mr. R. F. Haynes reported seeing recently a male and female *Gonepteryx rhamni* L. (Lep. Pieridae) and Dr. C. G. M. de Worms said that before the present cold spell had commenced he had seen several species of moths including *Biston strataria* Hufn. (Geometridae) and *Orthosia incerta* Hufn. (Noctuidae).

Mr. Barry Goater said he had seen *Nymphalis io* L. (Lep. Nymphalidae) on the 16th February.

Mr. T. G. Howarth had seen an example of *Pieris rapae* L. (Lep. Pieridae) in a comatose condition on the pavement in South Kensington just outside the British Museum (Nat. Hist.).

Mr. P. N. Crow gave news which he had received from Mr. F. H. Lees of Torquay, Devon, of migrant Lepidoptera; on the 16th February 14 *Laphygma exigua* Hübn. (Noctuidae) and one *Plusia gamma* L.

(Plusiidae) had come to mercury vapour light, and on the 23rd February a further three *L. exigua* Hübn. had occurred.

A film comprising extracts from the classic silent film of Conan Doyle's book "The Lost World" was shown followed by films of African wild life taken by the late Col. J. Corbet.

13th MARCH 1958.

The President in the Chair.

Mr. E. H. Chipperfield, F.R.E.S., was declared elected a member.

EXHIBITS.

The President—Two examples of *Megacyllene guttata* Chev. (Col., Cerambycidae) bred from larvae infesting Verawood (*Bulnesia arborea* Engl.), a very hard wood similar to Lignum vitae (*Guaiacum officinale* L.) from Venezuela.

Mr. A. D. Blaxill—A case of Rhopalocera from the Austrian Tyrol.

Mr. P. N. Crow—Three series of *Phragmatobia fuliginosa* L. (Lep., Arctiidae). (1) The typical form from southern England. (2) Form *borealis* Staud. from Inverness-shire. (3) F_1 generation of the latter bred in the south showing the characteristics of f. *borealis* but larger, this probably being due to the more succulent food.

Mr. R. M. Mere—A living example of *Leucania unipuncta* Haw. (Lep. Noctuidae) which had emerged that morning.

COMMUNICATIONS.

Mr. A. D. Blaxill gave an account of his visit to the Austrian Tyrol which he illustrated by coloured transparencies.

27th MARCH 1958.

A Vice-President, Mr. F. T. Vallins, A.C.I.I., F.R.E.S., in the Chair.

Mr. T. J. Dillon was declared elected a member.

EXHIBITS.

Dr. C. G. M. de Worms—A living example of a female *Biston strataria* Hufn. (Lep., Geometridae) which he had taken on a tree trunk near Ingatestone, Essex, 26.iii.58, at about 4.30 p.m. The wings were soft and it was presumed the insect had only just emerged. Dr. de Worms said he had only met two other females of this species in the wild.

Mr. F. D. Buck—An example of *Abdera triguttata* (Gyll.) (Col., Melandryidae) from Barton Mills in the Breck sand area of Suffolk, beaten from oak, 2.vi.57. This species was hitherto known only from the eastern highlands of Scotland.

COMMUNICATIONS.

The exhibit of Dr. de Worms aroused much interest. Mr. B. Goater said he had met a female *Biston strataria* Hufn. only once in the wild, in Hants. In this case, too, it was late afternoon and the wings were limp. Mr. R. Eldon Ellison said he had seen a feral female in Morocco but not in this country. Another instance was cited by Mr. T. G. Howarth who, with his wife, once found a pair *in cop.* at Hatfield, Herts, also in the afternoon.

Dr. Eugene Munroe of the Department of Agriculture in Ottawa gave an interesting account of his collecting expedition under the title of "Collecting insects in New Guinea and the Pacific". He illustrated his talk with numerous coloured transparencies showing a wide range of habitats not only in New Guinea but also in Hawaii, Fiji and Australia.

10th APRIL 1958.

The President in the Chair.

Mr. Neil Wilding was declared elected a member.

EXHIBITS.

Mr. A. E. Gardner—Three species of Acrididae from E. Africa which exhibited flash coloration: *Taphronota calliparea* Schaum, *Phymateus purpurascens* Karsch and *P. viridipes* Stål. The two first named species were taken by Dr. N. E. Hickin at 9,000 ft. in Kenya, 6.x.56.

Mr. F. D. Buck—Three specimens of *Derispia maculipennis* Mars. (Col., Tenebrionidae) with a close resemblance to the Coccinellidae; with, for comparison, another heteromerous insect, *Nilio lanatus* Germ. (Nilionidae) which also has a striking resemblance to the Coccinellidae. He read a note on the relationship between the two.

Mr. A. H. Sperring—(1) Specimens of a plant belonging to the genus *Helleborus* which had appeared in his garden after he had planted some *Helleborus viridis* L. amongst a cultivated variety of the same genus and which appeared to be an intermediate form. *H. viridis*, he said, has green flowers, the cultivated variety had purple flowers, and this form had greenish-purple flowers. The British Museum (Nat. Hist.) said the purple plant is only a cultivated form of *H. viridis* and the intermediate is the purple form reverting to type. He also gave details of a liver-coloured primrose which had occurred under an oak in company with the normal form. According to information received from the British Museum the liver-coloured primrose has long been known and, considering its mainly atlantic distribution, is most likely a relic form; but it may be due to crossing with a cultivated variety. (2) Series of *Trichopteryx polycommata* Schiff. (Lep., Geometridae) from Oxford and from Woodmancote on the Hants-Sussex border. (3) On behalf of Mr. F. T. Stanley, an example of *Euchromia lethe* F. (Lep., Syntomidae) from Freetown, W. Africa.

Mr. M. G. Morris—Aquatic or semi-aquatic insects representing eight orders taken in the Lake District on the Freshwater Biological Association's Easter Course, as follows: *Corixa falleni* (Fieb.) (Hem., Corixidae), 4.iv.58, Silverdale, Lancs.; larva of *Sialis* sp. (Meg., Sialidae), 4.iv.58, Kendal Canal; Nymphs of *Diura bicaudata* L. (Plec., Perlodidae), 28.iii.58, Ennerdale; Nymphs of *Ecdyonurus torrentis* Kimmins (Ephem., Ecdyonuridae), 26.iii.58, Cunsey Becle, Lancs.; larva of *Atherix* sp. (Dipt., Rhagionidae), 26.iii.58, Cunsey Becle, Lancs.; unidentified zygopterous (Odon.) nymphs, 4.iv.58, Kendal Canal; larva of *Rhyacophila dorsalis* (Curt.) (Trich., Ryacophilidae), 26.iii.58, Cunsey Becle; *Donacia vulgaris* Zschach (Col., Chrysomelidae), 27.iii.58, Esthwaite, Null Fen.

Mr. S. Wakely—Larvae of *Euzophera neophanes* Durr. (Lep., Crambidae) which he found on Horsell Common, Surrey, 6.iv.58. They were taken on their food plant, the fungus *Daldinia concentrica* Ces & de Nat., and live in a silk-lined burrow in the centre of the fungus. Imagines of the same species were shown together with two allied species, *Dioryctria fusca* Haw. and *Phycita betulae* Goeze.

Mr. B. M. Gerard—Specimens of *Phromnia pallida* Ol., a gregarious Flatid (Hem.) which occurs in the forest regions of W. Africa. The adults were found in clusters on several plants, especially lianes; they were also found to be attracted to light. Young adults are a deep green colour, soon changing to orange and later to a faded pink.

COMMUNICATIONS.

The librarian gave details of recent acquisitions and drew particular attention to *Butterflies of the Indian Region* published by the Bombay Natural History Society and donated by Canon T. G. Edwards. Also to *A Catalogue of Tasmanian Lepidoptera-Rhopalocera* donated by Mr L. E. Couchman.

Several members reported seeing at various times liver-coloured primroses from Carmarthen, Pembrokeshire, Folkstone and Biggin Hill in Kent, Sussex and the Forest of Dean, Glos.

Mr. S. N. A. Jacobs said he had seen a male *Diurnea fagella* F. (Lep., Oecophoridae) at Romney, Kent, remaining in the same spot for three days.

The President showed some coloured film of his trip to Central Africa.

24th APRIL 1958.

The President in the Chair.

EXHIBITS.

Mr. K. A. Spencer—(1) Living *Coleophora* larvae (Lep., Coleophoridae) of a species new to science and as yet undescribed, which he had recently taken in the environs of Madrid, Spain. (2) A set of postage stamps from Switzerland depicting insects of various orders.

Mr. R. N. Baxter—A larva of *Citheronia brissoti* Boisd. (Lep., Ceratocampidae) from S. America in its fifth instar. The young larvae of this species had at first not fed, refusing both young and old privet leaves. It was not until the old leaves were broken up that they began feeding.

Mr. F. D. Buck—(1) A specimen of *Agonum livens* (Gyll.) (Col., Carabidae) taken in sedge litter, Wood Walton Fen, Hunts., 13.iv.58. (2) Blockmaker's proofs of photographs of four 1957 field meeting parties from blocks donated by Mr. K. A. Spencer for publication in the *Proceedings*.

COMMUNICATIONS.

Dr. C. G. M. de Worms said he had seldom seen so many *Gonepteryx rhamni* L. (Lep., Pieridae) as he had in the New Forest the previous week-end. He had at the same time seen six *Pieris rapae* L. and a single *Euchloë cardamines* L. (Lep., Pieridae).

Mr. C. N. Hawkins said he also had seen a single *Pieris rapae* L. in his garden in Wimbledon, S.W. London.

The Secretary read extracts from a letter from Dr. B. P. Moore in Australia giving some details of the entomological fauna.

A report of the Box Hill field meeting was given by Mr. F. D. Buck and, in the absence of Mr. F. M. Struthers, Mr. S. Wakely gave a report of the Ockham meeting.

A talk was given by Dr. C. G. M. de Worms under the title "Africa revisited—the Victoria Falls and the Congo", which he illustrated with many coloured transparencies.

8th MAY 1958.

Mr. F. T. Vallins, A.C.I.I., F.R.E.S., Vice-President, in the Chair.

The death was announced of the Rev. Canon T. G. Edwards.

COMMUNICATIONS.

The Librarian announced that *Illustrations I, Pteridophyta to Papilionaceae* drawn by Sybil J. Roles was now available in the library. The work is a companion to *Flora of the British Isles* by Clapham, Tutin and Warburg.

Dr. C. G. M. de Worms commenting on current Lepidoptera said all the common Prominents had occurred, comprising seven or eight species. *Odontosia carmelita* Esp. and *Chaonia ruficornis* Hufn. (Notodontidae) were common at light. *Saturnia pavonia* L. (Saturniidae) had also come to light, quite a few *Selenia tetralunaria* Hufn. (Geometridae) had also arrived, but *Orthosia gracilis* Schiff. (Noctuidae) was scarce. In the Chilworth and Chiddingfold areas of Surrey *Euchloë cardamines* L. (Pieridae) and *Pararge aegeria* L. (Satyridae) were common.

Mr. R. F. Haynes said *Orthosia gracilis* Schiff. was also common at Dorking, Surrey, and that he had recently seen *Xanthorhoë biriviata* Borkh. (Geometridae) flying in Middlesex.

Mr. R. M. Mere said his trap was producing small numbers and nothing of interest. This was also the case with Mr. R. Fairclough, who said that 30 insects was the maximum number in any one night. Mr. T. G. Howarth also agreed that numbers were low, the commonest species in his trap being *Orthosia advena* Schiff. (Noctuidae) with *O. gracilis* Schiff. next.

Mr. F. D. Buck reported that Coleoptera were by no means plentiful at Wood Walton Fen, Hunts., neither were there many Lepidoptera on the wing, the only species seen being *Gonepteryx rhamni* L. (Pieridae), *Nymphalis io* L. and *Aglais urticae* L. (Nymphalidae), and *Pararge aegeria* L. (*Satyridae*).

A talk on "Some British Marine Fishes" was given by Mr. G. Palmer, illustrated by slides.

22nd MAY 1958.

Mr. F. T. Vallins, A.C.I.I., F.R.E.S., Vice-President, in the Chair.

Comdr. A. S. Downes, D.S.O., R.N., was declared elected a member.

EXHIBITS.

Mr. S. Wakely—Two larvae taken on the Wrotham, Kent, field meeting, 18.v.58, believed to be *Hypercallia christiernana* L. (Oecophoridae). He reported having bred a specimen of *Gracillaria azaleella* Brants (Gracillariidae) from a cocoon found on an azalea leaf in the garden of Mr. R. M. Mere at Chiddingfold, Surrey, on the occasion of the field meeting at Hog Wood in that locality on 4.v.58. Imagines of both species were shown from his collection.

Mr. T. J. Honeybourne showed very young larvae (? second instar) of *Catocala fraxini* L. (Plusiidae) of the second generation from a Ham Street, Kent, female. He also showed a flowering sprig of *Malus coronaria* Mill.

COMMUNICATIONS.

The Librarian reported the purchase of a copy of the recently published No. 36 of the New Naturalist Library—*Insect Migration* by Dr. C. B. Williams.

Reports were given of the Eashing, Hog Wood, Chobham and Wrotham field meetings.

Dr. C. G. M de Worms reported that migrant Lepidoptera were plentiful; he had taken a specimen of *Celerio livornica* Esp. (Sphingidae) in his trap at Woking, Surrey, and knew of another taken at Weymouth, Dorset. *Heliothis peltigera* Schiff. and some *Laphygma exigua* Hübn. (Noctuidae) had been taken, and he had received a tomato containing the larva of *Heliothis armigera* Hübn.

Geometers were, however, rather thin. *Mimas tiliae* L. and *Laothoë populi* L. (Sphingidae) had occurred recently and, he added, Mr. R. F. Bretherton had taken *Acherontia atropos* L. (Sphingidae) in his trap at Ottershaw, Surrey.

Mr. S. Wakely said two *Colobochyla salicalis* Schiff. (Plusiidae) had emerged the previous day bred from ova laid by a Ham Street, Kent, female. He said that some books mentioned that the species will feed on willow and sallow, and as the ova were laid just prior to his holiday he sleeved them on a willow in his garden. On his return after a fortnight's absence he found the larvae full grown. They did, he added, feed on aspen at Ham Street, but it was important for them to have young growth.

Mr. T. G. Howarth confirmed Mr. Wakely's remarks regarding young growth for the successful rearing of this species and said that in the wild they feed mainly on the young suckers so plentiful in aspen thickets.

Dr. de Worms recalled taking an example at light one September and suggested the possibility of a second emergence and Mr. Wakely agreed that there was a partial second emergence.

Coloured transparencies taken by Mr. Junichi Yano were shown of the Chobham and Hog Wood field meetings.

12th JUNE 1958.

The President in the Chair.

Mr. M. J. Friend was declared elected a member.

EXHIBITS

Mr. R. W. J. Uffen—A live imago of *Hypercallia christiernana* L. (*citrinalis* Scop.) (Lep., Oecophoridae) reared from a larva found on the Wrotham, Kent, field meeting, 18.v.58. The pupa is of a curious shape, like that of a butterfly, and is attached only by the tail to the foodplant, from which it stands up. (2) Larvae, pupae and adults of *Mycetobia pallipes Meig*. (Dipt., Anisopodidae) from Hyde Park, London, where the larvae feed in hundreds on decaying sap flowing from elm trees. (3) The crane-flies *Limonia nigropunctata* Schummel (Dipt., Tipulidae), a pair taken *in cop.* at Shoreham, Kent, 31.v.58, and another pair taken by Mr. W. H. Spreadbury at Newlands Corner, Surrey, 16.v.58; *L. masoni* (Edw.) a female found amongst several *L. nigropunctata* at Shoreham, as above; *L. tripunctata* (F.) the common species from Pulborough, Sussex, 24.v.58, for comparison. (4) An *Ephestia cautella* Walk. (Lep., Crambidae) reared from a larva found in a prune used as a centre in an expensive assortment of Argentinian chocolates.

Mr. B. Goater—Larvae of *Chaonia* (*Drymonia*) *ruficornis* Hufn. (Lep., Notodontidae) feeding on oak. Eggs were obtained from a female taken at light at Mill Hill, Middx., in April. The species appears to be rather uncommon in the district, only one or two specimens, hitherto males, being obtained in most years.

Mr. R. M. MERE—Four melanistic examples of *Leucania unipuncta* Haw. (Lep., Noctuidae) with, for comparison, two normal examples, all bred from Tresco, Scilly Isles. Ova were obtained in September 1957 from a wild female and larvae of the F_2 generation were given to Mr. Ian Lorimer. He obtained pairings and noted a few dark F_3 imagines which he paired. The four dark imagines exhibited were reared from F_4 larvae of Mr. Lorimer's stock. Ova have been obtained for an F_5 generation. The underside of these dark examples is a dull grey which helps to give the insects a dark greyish-black appearance. The upperside of the fringes is dark grey as are the hindwings but the upperside of the forewing retains some of its normal colour. The white speck has disappeared from the forewing. The legs, etc., are dark grey instead of normal.

COMMUNICATIONS.

Mr. F. T. VALLINS read a card he had received from Dr. C. G. M. de Worms, at present attending an International Ornithological Congress in Helsinki, Finland.

Eublemma ostrina Hübn. (Lep., Plusiidae) was reported from Camber, Sussex, at sugar, 31.v.58. A large immigration of *Plusia gamma* L. was also reported to have taken place.

Mr. R. M. MERE, who had recently visited the Isle of Man, said the commonest insect there was *Plutella maculipennis* Curt. (Lep., Plutellidae) which had occurred in swarms.

The PRESIDENT commented on *Tinodes assimilis* McLach. (Trich., Polycentropidae) which he had originally discovered in Ireland at Tramore, Waterford, some years ago, and which was just as plentiful when he recently visited the town; it is the only known Irish locality for the species. The insect belongs to the *fauna hygropetrica* and occurs on a small area of wet rocks in the centre of the town, which is some quarter of a mile from the nearest similar habitat.

An illustrated talk was given by Dr. G. O. EVANS on "Mites associated with Insects", which aroused considerable interest resulting in numerous questions.

26th JUNE 1958.

The PRESIDENT in the Chair.

The death was recorded of Mr. J. P. Robson.

EXHIBITS.

Mr. F. D. BUCK—Imagines of *Rhynchaenus fagi* (L.) (Col., Curculionidae) together with leaf mines of the larvae in beech from which they were bred. The leaves containing the mines were taken by Mr. R. M. Mere in the Isle of Man earlier in the year.

Mr. R. W. J. UFFEN—(1) A living pair of *Chrysoclista linneella* Clerck (Lep., Cosmopterygidae) from Hyde Park, London. (2) Larval cases, birch leaf with larval mines, and adults of *Coleophora fuscedinella* Zell. (Lep., Coleophoridae) from Oxshott, Surrey.

Mr. J. L. Henderson—Coleoptera taken on the Society's field meeting at Orleston Wood, Ham Street, Kent, 14.vi.58: *Cychramus luteus* (F.) and the variety *fungicola* Heer (Nitidulidae) both beaten from blossom; *Ctenicera* (*Corymbites*) *nigricornis* (Panz.) (Elateridae); *Lagria atripes* (Muls.) (Lagriidae); *Cryptocephalus sexpunctatus* (L.); *Phyllodecta laticollis* (Suff.) (Chrysomelidae); and *Byctiscus populi* (L.) (Curculionidae).

COMMUNICATIONS.

Mr. B. Goater said that while collecting at Ham Street, Kent, on 7th June, he saw several *Colobochyla salicalis* Schiff. (Lep., Plusiidae), all males, one of which was very worn and he suggested that it was a bad season for this insect. On the same occasion only a couple of *Euphyia luctuata* Schiff. (Lep., Geometridae) were noted. A week prior, another member reported, there were no *E. luctuata* at all.

Heliothis peltigera Schiff (Lep., Noctuidae) was reported from both Dorking, Surrey, and Eastbourne, Sussex; from the latter locality a worn example was taken as early as May. It had also occurred in a mercury vapour trap at Arkley, Herts., on 12th May, and another was taken at Totteridge, Middx., a week earlier.

The geometer *Nycterosia obstipata* F. was also reported from Eastbourne, but otherwise Mr R. Eldon Ellison had seen little of note.

Dr. M. Burton of the British Museum (Nat. Hist.) showed two excellent cinematograph films under the title "Some aspects of animal behaviour". The first concerned the phenomenon of self-anointing in hedgehogs, and the second dealt with anting in birds. He gave an account of these occurrences which provoked a lively discussion resulting in many questions.

10th JULY 1958.

Mr. F. T. Vallins, A.C.I.I., F.R.E.S., Vice-President, in the Chair.

A welcome was extended to two prominent entomologists from overseas, Professor Alexander Klots of New York, U.S.A., and Dr. Tuxen of Copenhagen, Denmark.

EXHIBITS.

Mr. R. W. J. Uffen—A living female *Ethmia terminella* Fletcher (Lep., Hyponomeutidae), one of a pair taken *in cop.* at Folkestone, Kent, 6.vii.58. The species appears to have been recorded only from Dungeness, Kent, in the past.

Mr. T. J. Honeybourne—An unusual colour form of *Notodonta ziczac* L. (Lep., Notodontidae) which resembles an American form.

Mr. T. R. Eagles—A continental yellow-flowered form of *Iris foetidissima* L. var. *citrina* Bromf. (Gladdon or Stinking Iris). Clapham, Tutin and Warburg (1952, *Flora of the British Isles*, p. 1268) say the flowers are purplish-livid, rarely yellow. The unpleasant smell comes from the crushed leaves not from the flowers.

Mr. B. GOATER—*Azolla filiculoides* Lam. (Azollaceae), an aquatic fern resembling the duckweeds (Lemnaceae) in habit. He read a note.

Dr. C. G. M. DE WORMS—(1) A gall on a sallow stem from which *Aegeria flaviventris* Staud. (Lep., Sesiidae) had emerged. (2) *Nephopterix similella* Zinck. (Lep., Crambidae) taken in his trap at Horsell, Surrey, the previous night.

COMMUNICATIONS.

Dr. DE WORMS said *Dicycla oo* L. (Lep., Noctuidae) and *Apoda avellana* L. (Lep., Limacodidae) had occurred at Woking, Surrey. At Ham Street, Kent, the previous Tuesday (8th) about 80 species of Lepidoptera had come to light, including a single example of *Enargia paleacea* Esp. (Noctuidae) which arrived very late at night. Dr. de Worms thought this was about a month in advance of its normal date. Also seen were some fine examples of *Angerona prunaria* L. (Geometridae) and two fresh specimens of *Colobochyla salicalis* Schiff. (Plusiidae). *Limenitis camilla* L. (Lep., Nymphalidae) was just emerging at Chiddingfold, Surrey.

Mr. R. ELDON ELLISON reporting on a recent trip to the Thetford area of the Norfolk-Suffolk border said that many of the Lepidoptera specialities of the Breck were still about but no *Heliothis viriplaca* Hufn. (Noctuidae) were seen. About four of the local species were seen including *Anepia irregularis* Hufn. (Noctuidae).

Papilio machaon L. (Lep., Papilionidae) was reported to be plentiful on the Norfolk broads on 13th June. A member visiting Devon and Cornwall at the end of June said he had seen no *Maculinea arion* L. (Lep., Lycaenidae) but *Argynnis aglaia* L. (Lep., Nymphalidae) was plentiful. However *M. arion* was reported to be plentiful in N Cornwall on 4th July but was worn.

Mr. B. GOATER had taken two *Enargia paleacea* Esp. in previous years in Hants. and reported that Mr. R. M. Mere had taken it at Chiddingfold, Surrey, also in previous years in July. Referring to *Dicycla oo* L. Mr. Goater said he had a number at sugar at Mill Hill, Middx., the previous week. These moths had come to the sugar well, at about 10 p.m., while the nights were overcast, but later in the week when the nights became clear they appeared at the same time but fluttered up and down in front of the sugar, obviously aware of it, but did not settle or feed.

In the main the lepidopterists thought that the July insects were late and the August insects were early.

Mr. C. N. HAWKINS said that he had recently seen a male *Lucanus cervus* L. (Col. Lucanidae) in flight at mid-day. While it was agreed that evening was the normal time to expect this species to fly, other instances were given of similar occurrences.

Professor Klots gave a talk on the wild life of North America, particularly that of the deserts of the south-west, which was accompanied by a wide selection of first-class colour transparencies.

24th JULY 1958.

The President in the Chair.

EXHIBITS.

The President—A collection of arthropods made in northern Tanganyika about 30 years ago.

Mr. J. L. Henderson—Coleoptera taken in the New Forest, Hants., near Brockenhurst, during the period 31.v. to 5.vi.58; *Agabus congener* (Thunb.) (Dytiscidae), from a small stream running through a bog; *Lomechusa emarginata* (Payk.) (Staphylinidae), a single example found in the water net; *Telmatophilus caricis* (Ol.) (Cryptophagidae) and *Pediacus dermestoides* (F.) (Cucujidae) on hawthorn blossom; and *Rhinomacer attelaboides* F. (Curculionidae) on Scots Fir.

Mr. M. W. F. Tweedie—(1) Moths from Rye Harbour, Sussex, 31.v. to 4.vi.58: *Heliothis peltigera* Schiff. (Noctuidae) and *Oxyptilus distans* Zell. (Pterophoridae). (2) An example of *Caradrina blanda* Schiff. (Noctuidae) with pollinia of an orchid attached to its proboscis.

Mr. S. Wakely—Five examples of *Hypercallia christiernana* L. (Oecophoridae) bred from larvae found feeding on *Polygala* (Milkwort) at Wrotham, Kent, 18.v.58, together with pupal cases.

Mr. R. W. J. Uffen—A living female *Hyponomeuta irrorella* Hübn. (Lep., Hyponomeutidae), one of three taken by Mr. L. T. Ford and himself on the High Halstow, Kent, field meeting on 12.vii.58.

COMMUNICATIONS.

The Librarian reported on recent acquisitions to the library, which included those bequeathed by the late Canon T. G. Edwards and the donation, by Mr. S. N. A. Jacobs, of a recent part of the *Handbooks for the identification of British Insects.*

The question was raised whether it was normal to find the three common Zygaenid moths, *Zygaena filipendulae* L., *Z. lonicerae* von Scheven and *Z. trifolii* Esp., together. This was followed by a short discussion on differentiating *Z. lonicerae* from *Z. trifolii.*

In response to a question regarding orchid pollinia on insects other than bees, Mr R. M. Mere said it is not rare to find pollinia on *Calamia tridens* Hufn. (Noctuidae) in the Burren of Clare, Ireland. He estimated 2-3% were so affected.

Mr. S. Wakely said he had taken *Scopula nigropunctata* Hufn. (Geometridae) at Ham Street, Kent, during the past fortnight. It apparently used to be taken in the Warren.

Mr. David Wright, Mr. Mere reported, had taken *Eurois occulta* L. (Noctuidae) at White Hill, N.E. Hants. Previous records were discussed.

14th AUGUST 1958.

Mr. F. T. Vallins, A.C.I.I., F.R.E.S., Vice-President, in the Chair.

The death was announced of Mr. J. W. Saunt.

A welcome was extended to Dr. Hoberlande from Prague.

EXHIBITS.

Mr. R. Eldon Ellison—(1) Dark and light forms of *Dasychira pudibunda* L. (Lep., Lymantriidae) taken simultaneously at light with a typical specimen for comparison. (2) A short series of *Zygaena lonicerae* von Scheven (Lep., Zygaenidae) and of *Z. trifolii* Esp., illustrating the differences in the antennae.

Mr. T. R. Eagles—Galls on *Rosa spinosissima* L. (Burnet Rose) caused by *Rhodites spinosissimae* Giraud (Hym., Cynipidae) from Woolacombe Sands, N. Devon, 31.vii.58.

COMMUNICATIONS.

A member asked if details were known of the Southwold record in the Royal Entomological Society's *Handbook for the Identification of British Insects*, Vol. x, Part 1, of the syrphid fly *Callicera spinolae* Rondani. The fly was first placed on the British list by a record from Suffolk in 1942; and was again taken a few miles away in 1948.

Plusia ni Hübn. (Lep., Plusiidae) was reported in a mercury vapour trap at Eastbourne, Sussex, the previous week, and another was taken at Dorking, Surrey, the previous Sunday, 3.viii.58.

Mr. C. N. Hawkins thought the meeting would be interested in a record of the Lesser Spotted Woodpecker in Wimbledon, S.W. London, recently.

28th AUGUST 1958.

Mr. J. L. Henderson, Hon. Treasurer, in the Chair.

The death was announced of Mr. H. A. Leeds.

EXHIBITS.

The Chairman—*Lomechusa paradoxa* Grav. (Col., Staphylinidae) with, for comparison, *L. emarginata* (Payk.). These are two of the four or five true coleopterous guests of ants. The two species shown breed in the nests of *Formica* spp. and migrate to a nest of *Myrmica* spp. for the winter (*teste* Donisthorpe).

Mr. R. Eldon Ellison—Specimens of *Angerona prunaria* L. (Lep., Geometridae) showing ab. *pickettaria* Prout, male and female, from Ham Street, Kent, and ab. *feminaecoloris* Valle from Killarney. He referred to Dr. H. B. Williams' paper "*Angerona prunaria* L.: its variation and genetics" (1947, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1946/7**: 123-139).

Mr. S. **Wakely**—Thirty-six specimens of *Eucosma semifuscana* Steph. (Lep., Eucosmidae) all bred from larvae found on sallow at the beginning of June this year at Dungeness, Kent. Hardly two were alike and the series included some striking dark-brown-and-white forms.

Mr. R. **Fairclough**—Geometrid lepidopterous larvae, all being fed on Knotgrass, *Polygonum aviculare* agg. (1) *Sterrha vulpinaria* H.-S. (*rusticata* Schiff. auct. nec Schiff.), female taken at Dartford, Kent, July 1958. (2) *Gnophos myrtillata* Thunb., female taken at Aviemore, Inv., July 1958. (3) *Scopula ternata* Schrank (*fumata* Steph.), female also taken at Aviemore, July 1958.

Mr. T. R. **Eagles**—A larva of *Tethea ocularis* L. (Lep., Thyatiridae) found on Black Poplar, *Populus nigra* L., at Enfield, Middx.

COMMUNICATIONS.

The Librarian reported that two books, *The Natural History of the Hitchin Region*, and *Hampstead Heath, its Geology and Natural History* had been presented to the Society by Mr. W. H. Spreadbury. He also reported that *The World of Butterflies and Moths* by Professor Klots had been added to the Library.

Dr. C. G. M. de Worms had recently been collecting Lepidoptera in Scotland. At Dalwhinnie and Aviemore in Inverness-shire he had noted some fine forms of *Trichiura crataegi* L. (Lasiocampidae) and *Noctua* (*Triphaena*) *sobrina* Boisd. (Noctuidae). In the northern parts of Zetland (Shetland Isles) he had taken, at mercury vapour light, the local forms of *Euxoa cursoria* Hufn., *Ammogrotis lucernea* L., *Amathes glareosa* Esp. and *Diarsia festiva* Schiff. (Noctuidae).

Mr. H. D. Swain had had bad weather in North Wales, but night work with a mercury vapour lamp had been productive despite rain. Among the insects noted were *Noctua* (*Triphaena*) *orbona* Hufn. and *Amathes ashworthii* Doubl. (Lep., Noctuidae) and *Plusia festucae* L. and *P. bractea* Schiff. (Lep., Plusiidae).

Members remarked that the last named species had in recent years apparently extended its range southwards and Mr. R. **Fairclough** said he had taken it in South Wales.

Mr. R. M. **Mere** said that in company with Mr. E. C. **Pelham-Clinton** he had worked three mercury vapour light traps in the Scilly Isles for Lepidoptera from the 6th to the 16th August. One of the commonest moths was *Agrotis trux* Hübn. (Noctuidae). Six *Leucania unipuncta* Haw. (Noctuidae), six *Rhodometra sacraria* L. (Geometridae), three *Plusia ni* Hübn. (Plusiidae) and one *Nycterosia obstipata* F. (Geometridae) were seen. By day a few *Colias croceus* Fourc. (Pieridae) were flying including one ab. *helice* Hübn.

Dr. **de Worms** gave an account of the International Congress on Ornithology recently held at Helsinki in Finland. He described his experiences in that country, illustrating his remarks with coloured slides of the scenery, the local plants and the nests of birds, many of the birds being only rare casual visitors to Britain.

11th SEPTEMBER 1958.

Vice-President, Mr. F. T. Vallins, A.C.I.I., F.R.E.S., in the Chair.

A welcome was extended to two prominent entomologists from the U.S.A.: Dr. Remington of Yale, editor of *The Lepidopterist's News*, and Dr. Obraztsov of New York, an authority on Holarctic Tortricidae.

Messrs N. Hammond, W. F. Nolde and A. J. Sharman were declared elected members.

EXHIBITS.

Mr. S. Wakely—(1) Larvae of *Abraxas sylvata* Scop. (Lep., Geometridae) and *Ethmia decemguttella* Hübn. (Lep., Hyponomeutidae) found on the Druids Grove field meeting, 7.ix.58. (2) Larvae of the very local geometrid *Eustroma reticulata* Schiff. from Westmorland. (3) Examples of the three species of moths belonging to the genus *Hyponomeuta* (Hyponomeutidae) which feed on *Euonymus europaeus* L. (Spindle-tree); *H. irrorella* Hübn., *H. cognatella* Hübn. and *H. plumbella* Schiff. Attention was drawn to the great rarity now of the first named insect; the four specimens shown were taken on the High Halstow, Kent, field meeting, on the 12th July.

Mr. P. N. Crow—Series of *Leucania pallens* L. (Lep., Noctuidae) and of *L. favicolor* Barr. taken on the same night in June this year at sugar in Essex.

COMMUNICATIONS.

Mr. C. N. Hawkins drew attention to an item in the *Evening News* for 10.ix.58 which reported an example of *Herse convolvuli* L. (Lep., Sphingidae) in Fulham Palace Road, London, S.W.

Other examples were reported by various members from Witley, Surrey, a male, two nights previously (9th); Folkstone, Kent, on 21st August; and Eastbourne, Sussex, on 2nd September.

Dr C. G. M. de Worms said there had recently been a large immigration of *Plusia gamma* L. (Lep., Plusiidae). As many as 300 had been taken in a trap at Eastbourne on the night of the 2nd September, and he had had 100 in a night at Woking, Surrey, on 4th September. Mr. R. W. J. Uffen said the species was common in the Forest of Dean, Glos., a week ago as a day flier, and at Chiddingfold, Surrey, Mr. R. M. Mere reported a maximum of 305 had come to light in one night. Another member reported *P. gamma* to be very common at Folkestone. On the other hand Mr. F. T. Vallins said that in Switzerland this insect had been scarce, he estimated no more than 20 examples had been seen by day during the three weeks of his stay.

On Canvey Island, Essex, the previous day, Dr. de Worms said the new sea wall was swarming with small insects which comprised six or seven species of Coleoptera, some Diptera, Hymenoptera and Hemiptera.

Mr. R. M. Mere said *Rhodometra sacraria* L. (Lep., Geometridae) appeared to be widespread this year. He had taken two at Chiddingfold and he knew of three more at Whitehill, Hants.; all five at mercury vapour light. Another member reported two at Wickley, Surrey, and Mr. M. G. Morris had taken one at East Malling, Kent.

Giving details of Suffolk Lepidoptera a member said *Leucania albipuncta* Schiff. (Noctuidae) had occurred at sugar three weeks previously at Staverton, and in the same locality he had taken *Stilbia anomala* Haw. (Noctuidae). In the Stowmarket area *Amathes glareosa* Esp., *Hadena compta* Schiff. and *Leucania obsoleta* Hübn. (Noctuidae) had been taken, the first two being taken in the Ipswich area also. *Nola albula* Schiff. (Nolidae) had occurred in the Aldeburgh district. During September a variety of *Amathes c-nigrum* L. (Noctuidae) had been taken and in Blythburgh Wood the dipteron *Volucella inanis* (L.) (Syrphidae) had been taken.

Mr. R. Fairclough said he had had a female *Palpita unionalis* Hübn. (Pyralidae) at mercury vapour light on 3rd September and also a female *Nycterosia obstipata* F. (Geometridae). Only the *P. unionalis* had laid eggs which had hatched on the 10th.

A paper on "The structure of the reproductive system and sperm transference in the Lepidoptera" was read by Dr. H. E. Hinton, and was illustrated by lantern slides and numerous blackboard drawings. A number of questions were asked and an interesting discussion followed.

25th SEPTEMBER 1958.

The President in the Chair.

EXHIBITS.

Mr. S. Wakely—A series of *Colobochyla salicalis* Schiff. (Lep., Plusiidae) bred from females taken on the Society's field meeting at Ham Street, Kent, the previous year.

Mr. C. N. Hawkins—Two contrasting forms of *Spilosoma lutea* Hufn. (Lep., Arctiidae). (1) An almost immaculate pale cream female taken at rest at Minehead, Somerset, 19.vi.52. The only marks on the upper surface are a minute black spot on the costa of each forewing a short distance from the base, and a darkish scale or two near the apex of the right forewing. (2) A richly coloured, almost buff, male netted at dusk in the exhibitor's garden at Wimbledon, S.W. London, 22.vii.56, with well developed spotting on the forewings including on each a complete transverse sinuous row of black spots from costa to inner margin, at about two-thirds from the base, and a single large discal spot on each hindwing.

Mr. K. A. Spencer—Mines of *Phytomyza alpina* Groschke (Dipt., Agromyzidae) on Ragwort, taken in Scotland by Mr L. Christie.

Mr. T. R. Eagles—The following fungi: (1) *Geaster bryantii* Berk and *G. fimbriatus* Fr. found on the Druid's Grove field meeting, 7.ix.58. (2) *Craterellus cornucopioides* (L.) Fr., *C. sinuosus* Fr. and *Polystictus velutinus* Fr., from Basingstoke, Hants.

Mr. A. E. **Gardner**—(1) Two male *Aeshna cyanea* (Müll.) (Od., Aeshnidae). One specimen was vacuum dried, a metal water-pump attached to the house main water supply being the means of exhausting the air from the dessicator. The second specimen, also vacuum dried, had the air in the dessicator exhausted by connecting the outlet to the vacuum operated windscreen wiper connection on the inlet manifold of a Ford Anglia car. Whilst the colour preservation suffered but little the advantage of the latter method is obvious in localities where a suitable water supply is inadequate or lacking. (2) The exuviae of a male of the endemic Madeira dragonfly *Sympetrum nigrifemur* (Selys) (Od., Libellulidae), one of the 15 specimens bred from eggs obtained from a female at Palehiro Ferreiro, in December 1957. The larva had previously been unknown.

COMMUNICATIONS.

Reports were given of the Druid's Grove, Bookham and Benfleet field meetings.

It was reported that a second wave of immigrant Lepidoptera had occurred at Eastbourne, Sussex, on 14th-15th September; *Hippotion celerio* L. (Sphingidae), *Rhodometra sacraria* L. (Geometridae) and *Palpita unionalis* Hübn. (Pyralidae) were recorded. At Dorking, Surrey, *Lithosia quadra* L. (Arctiidae) and *Rhodometra sacraria* L. were taken.

A discussion took place on the application of the term "immigration" to these large scale movements of insects.

9th OCTOBER 1958.

The **President** in the Chair.

Messrs. G. F. Dollimore and P. M. Pollock were declared elected members.

EXHIBITS.

An Exhibition of Fungi, comprising about 100 species, was laid out in the Library. Among the more interesting were:—

From Oxshott, Surrey, *Cordyceps ophioglossoides* Link. and *Elaphomyces variegatus* Vitt., the former being a parasite on the latter.

From Banstead, Surrey, *Hygrophorus pratensis* (Pers.) Fr. var. *pallidus* B. & Br., *H. chlorophanus* Fr., *H. eburneus* (Bull.) Fr., *H. unguinosus* Fr., *H. coccineus* (Schaeff.) Fr., *Leotia lubrica* (Scop.) Pers. and *Helvella crispa* Scop. ex Fr. The two last named species were very large fine examples.

From White Webbs Park, Enfield, Middlesex, *Psilocybe semi-lanceata* Fr., *Mutinus caninus* Fr., *Stereum sanguinolentum* Fr. and *Polyporus intybaceus* Fr.

Mr. B. **Goater**—Selected specimens from a series of *Cirrhia ocellaris* Borkh. (Lep., Noctuidae) bred from larvae obtained from the catkins of

Populus nigra L. (Black Poplar) at Weybridge, Surrey, 28.iv.58. From approximately 2 lbs. of catkins 74 *C. ocellaris* Borkh., six *Apamea ypsillon* Schiff., four *Agrochola macilenta* Hübn., two *Cosmia trapezina* L. (all Noctuidae) and several *Operophtera brumata* L. (Geometridae) were obtained. The *Cirrhia ocellaris* Borkh. emerged between 7th August and 15th September, and displayed considerable variation in size and colour.

Mr. N. Wilding—An example of *Rhodometra sacraria* L. (Lep., Geometridae) taken at Dale, Pembrokeshire, 6.ix.58.

Mr. A. E. Gardner—Two specimens of the dragonfly *Uropetala carovei* (Od., Petaluridae), taken by Dr. J. S. Armstrong, 11.ii.58, at Tongariro National Park, New Zealand.

COMMUNICATIONS.

Mr. W. H. Spreadbury gave a report of the fungus foray held at Chipstead, Surrey, on 4th October, and the Secretary read a report of the Mickleham, Surrey, field meeting on behalf of Mr. F. Rumsey.

A worn example of *Vanessa cardui* L. (Lep., Nymphalidae) was reported from Wimbledon, Surrey, by Mr. C. N. Hawkins, and Mr. E. E. J. Trundell reported the capture of *Acherontia atropos* L. and *Celerio livornica* Esp. (Lep., Sphingidae) in Kent during the first week of September.

Arising from Mr. Trundell's remarks, Mr. R. Eldon Ellison said that though in some respects this season might be considered the worst on record, he had found it remarkably good for the scarcer migrants. He had taken no less than nine species in his mercury vapour trap at Eastbourne, Sussex, this year. The species are as follows: *Herse convolvuli* L. and *Hippotion celerio* L. (Sphingidae); *Laphygma exigua* Hübn., *Leucania vitellina* Hübn., and *Heliothis peltigera* Schiff. (Noctuidae); *Plusia ni* Hübn. (Plusiidae); *Rhodometra sacraria* L. and *Nycterosia obstipata* F. (Geometridae); and *Palpita unionalis* Hübn. (Pyralidae).

A query regarding the occurrance of *Colias* species during the year produced the record from Mr. R. M. Mere of some three examples on St. Mary, Scilly Isles; and from Mr. S. N. A. Jacobs that he seen specimens at Cuckfield Haven, Sussex, on 1st September.

The President showed some remarkable colour transparencies of lions in Africa on which he gave some interesting comments.

25th OCTOBER 1958.

THE ANNUAL EXHIBITION—RECORD OF EXHIBITS

Mr. A. E. Aston—(1) Three Breckland species of Lepidoptera: *Anepia irregularis* Hufn. and *Emmelia trabealis* Scop., caught 28.vi.58; and *Lithostege griseata* Schiff., caught 27.vi.51. (2) Lepidoptera from other Suffolk localities: *Leucania albipuncta* Schiff.; *Leucania obsoleta*

Hübn., at light, Stowmarket, 30.vi.58; the first Suffolk example of *Hadena compta* Schiff., Polstead, 2.viii.53; *Stilbia anomala* Haw., Staverton Forest, 23.viii.58; *Amathes c-nigrum* L., with left forewing abnormal; the Stowmarket specimen of *Pammene aurantiana* Staud., 10.viii.51; a banded variety of *Chiasmia clathrata* L., at light, Stowmarket, 27.vi.51 (Pl. III, fig. 6); *Maniola jurtina* L., Framlingham, 1943, with bleached left hindwing; *Lycaena phlaeas* L., Stowmarket, 1948, approaching ab. *suffusa* Tutt; *Polyommatus icarus* Rott., Barking Woods, 13.ix.45, an aberration resembling ab. *arcua* Wheeler except that it also has spots joined on the underside of the hindwings. (3) Lepidoptera from various other localities: a male and female melanic *Gonodontis bidentata* Clerck, from Dulwich, S.E. London, where approximately one in 20 is of this form (? ab. *nigra* Prout); *Zygaena trifolii* Esp. ab. *glycirrhizae* Hübn., Cholesey, Berks., 24.vi.58; *Menophra abruptaria* Thunb. ab. *fuscata* Tutt, Dulwich, 16.vi.58; *Papilio machaon* L., bred from Barton Broad, Norfolk, 1946, three larvae produced adults with diminished spot on right forewing.

Mr. K. E. J. Bailey—Series of British Rhopalocera taken during 1957-8. *Pararge aegeria* L. race *egerides* Staud., melanic male of second generation taken at Tubney, N. Berks, 29.vii.58; *Maniola tithonus* L., male ab. *antiexcessa* Leeds taken at Tubney, 20.vii.58; *M. jurtina* L., both males and females including several bleached forms, and the aberrations *antialba* Leeds, *anticrassipuncta* Leeds, *antiexcessa* Leeds, and one female with the anterior wing apical ocellus lanceolate and divided into two, the underside being normal, all from the Oxford district, June-August 1958; *Aphantopus hyperantus* L., both males and females ab. *arete* Müll., a female with enlarged ocelli and a female approaching ab. *lanceolata* Shipp, taken at Tubney, July 1958; *Argynnis euphrosyne* L., a male aberration with banded anterior wing, taken in W. Bucks., 20.vi.58; *A. cydippe* L., a male taken at Tubney, 20.vii.58, one of the few recorded examples in recent years; *Polyommatus icarus* Rott., females including ab. *iphis* Meig. and ab. *caerulea* Fuchs., a female ab. *caerulea* Fuchs., with anterior wing borders suffused with blue unequally distributed, taken at Goring, Oxon., August 1958; also male underside forms including abs. *postico-obsoleta* Tutt and *apicojuncta* Tutt, female undersides including abs. *basijuncta* Tutt and *caeca* Gillm., taken in the Oxford district, August 1958; *Lysandra coridon* Poda, a series of aberrations taken in a restricted locality in southern England during August 1957 and 1958, including male upperside forms *ultraalbocrenata* B. & L., *ultrapunctata* B. & L., and a male ab. *ultrapunctata* B. & L. with orange lunules appearing on the uppersurface of the anterior wings, a female *semisyngrapha* Tutt; also male underside forms including *postcaeca* B. & L., *anticaeca* B. & L., *postobsoleta* B. & L. and *addenda* Tutt; male underside forms including *alba* B. & L. + *curvata* B. & L., *confluentiae* Courv., *antiarcuata* B. & L., *obsoleta* Tutt, *postcaeca* B. & L., *crassipuncta* Courv., *bi-l-nigrum* B. & L., *antistriata* B. & L. and *addenda* Tutt; *Aglais urticae* L., a male approaching ab. *ichnusoides* Selys and a similar form set reverse; a male with extended blue markings bred at Birmingham University, September 1958.

Mr. W. N. Beesley—Blowflies of veterinary importance in Britain. *Lucilia sericata* (Meig.) the species which causes most damage to sheep, together with the other occasionally 'primary' flies *L. caesar* (L.) and *Protiphormia* (*Phormia*) *terrae-novae* (R.-D.). *Lucilia cuprina* Wied. bred from Australian pupal material, was also shown as the most important of the Australian 'primary' sheep blowflies. A 'secondary' fly, in addition to *L. caesar* and *P. terrae-novae*, was *Calliphora erythrocephala* (Meig.); *C. vomitoria* (L.) was demonstrated as an example of a 'tertiary' fly (laying its eggs on sheep which have already been badly attacked by the other two types of fly). The *Lucilias* of no veterinary importance (*L. illustris* (Meig.), *L. silvarum* (Meig.) and *L. richardsi* Collin) were also shown, along with the two which parasitise the common toad (*Bufo vulgaris* L.), namely *L. ampullacea* Villeneuve, and *L. bufonivora* Moniez. *Cynomyia mortuorum* (L.) and *Acrophaga subalpina* (Ringdahl) were shown as examples of other Calliphorines which do not parasitise sheep, and finally *Orthellia caesarion* (Meig.) (Muscidae) as a metallic non-calliphorine.

Mr. Cecil L. Bell—*Lycaena phlaeas* L., a forewing ab. *suffusa* Tutt, and a hindwing aberration taken wild in Somerset, July 1958; *Argynnis aglaia* L., a male approaching ab. *pluriradiata* Verity, taken wild in Somerset, July 1958; another underside identical with that illustrated by Frohawk, F. W. (1934, *The Complete Book of British Butterflies*, p. 107), as ab. *charlotta* Haw.; *Aglais urticae* L., a male with pale forewings and normal hindwings, taken wild in Wilts., September 1958; *Euphydryas aurinia* Rott., part of a series bred under constant light and even temperature which emerged from hibernation 25.i.58, moulted twice, and became full grown 13.ii.58, all the imagines emerging between 26.ii.58 and 3.iii.58; *Arctia caja* L., two aberrations taken at light at Bristol, Glos., 1958.

Mr. Neville L. Birkett—(1) British Lepidoptera; *Herse convolvuli* L., a female taken in a trap at Kendal, Westmorland, 11.ix.58; *Heliothis armigera* Hübn., a female taken in a trap at Kendal, 7.ix.58, the only previous record for the district is of one example at Grange-over-Sands, Lancs., in 1932; *Aegeria spheciformis* Schiff., a specimen taken at Witherslack, Westm., 10.vii.58, only previously recorded from Windermere, Westm., in 1890's. (2) European Lepidoptera: A small

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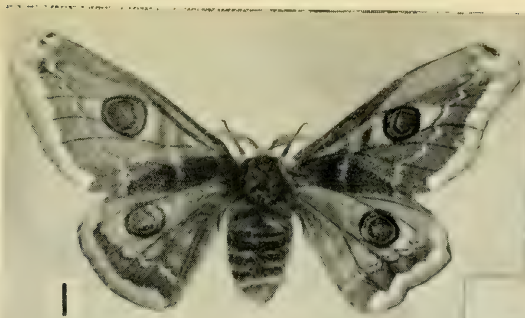
ANNUAL EXHIBITION, 25th October 1958.

1. *Saturnia pavonia* L., intersex, P. L. Gent. 2. *Noctua* (*Triphaena*) *pronuba* L., extreme homoeosis, Dr. H. B. D. Kettlewell and A. L. Goodson. 3. *Allophyes oxyacanthae* L., Comdr. G. W. Harper. 4. *Panaxia dominula* L., extreme melanic, I. R. P. Heslop. 5. *Amathes c-nigrum* L., albino, R. Taylor. 6. *Amathes c-nigrum* L., asymmetrical aberration, Dr. H. B. D. Kettlewell and A. L. Goodson. 7. *Tholera cespitis* Schiff., Dr. H. B. D. Kettlewell and A. L. Goodson. 8. *Ecliptopera silaceata* Schiff., Col. W. Bowater. 9. *Polyommatus icarus* Rott. ab. *livida* Gillm., Mr. and Mrs. E. L. Bolton.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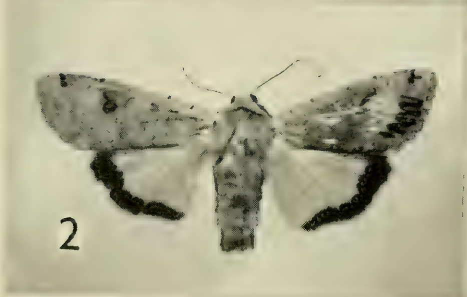
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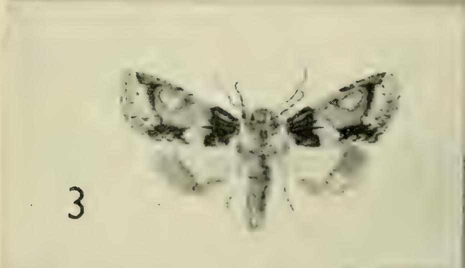
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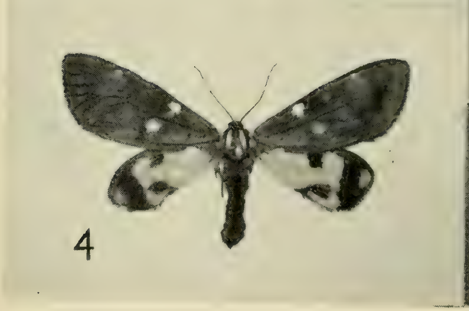
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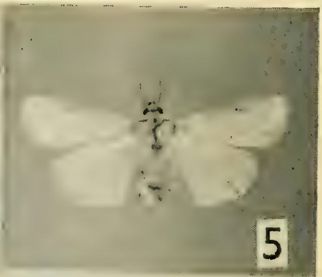
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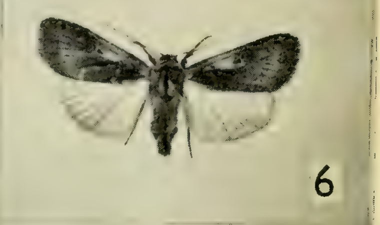
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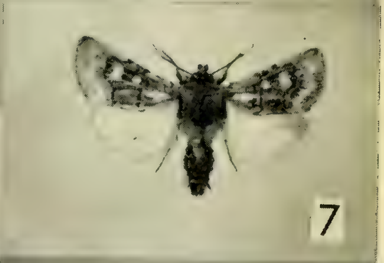
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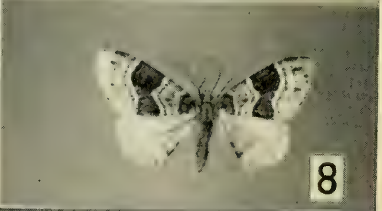
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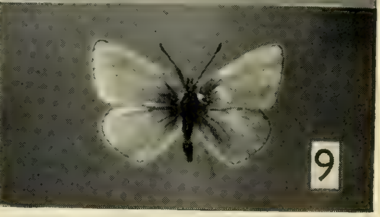
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[*Photographs by H. W. T. Tams.*]

selection of insects from the French Pyrenees and the Costa Brava district of Spain. French Pyrenees: *Parnassius apollo* L., *Euchloë euphenoides* Staud., *Brenthis aphirape* Hübn., *Erebia meolans* de Pr., *Coenonympha arcania* L. From the Costa Brava: *Gonepteryx cleopatra* L., *Melanargia lachesis* Hübn., *Satyrus circe* F., *S. hermione* L., *Epinephele ida* Esp., *E. pasiphae* Esp., *Lampides boeticus* L., *Thecla esculi* Hübn., and *Melitaea didyma* Esp. (3) Diptera: A small number of non-biting midges or Chironomidae. *Podonomus kiefferi* Garrett, (*peregrinus* Edwards), *Pentaneura hirtimanus* (Kieffer), *P. carnea* (F.), *Protanypus* (*Procladius*) *morio* (Zett.), *Procladius sagittalis* (Kieffer), *Limnophyes* (*Lymnophytes*) *minimus* (Meig.), *Chironomus anthracinus* (Zett.), *C. tentans* F., *C.* (*Stenochironomus*) *gibbus* (F.), all from the Kendal district. Two females of a species apparently new to Britain taken by E. C. Pelham Clinton on the top of Braeriach, Inv. Possibly *Pseudodiamesa nivosa* Goet., a male and a female are at present away at Plön for expert opinion.

Mr. C. S. H. Blathwayt—Lepidoptera taken during 1958 at Weston-super-Mare, Somerset, unless otherwise stated: *Herse convolvuli* L., taken at light on 16th September; *Laphygma exigua* Hübn., two specimens taken at light on 27th July and 27th August, also one specimen taken at Budleigh Salterton, Devon, on 21st August; *Heliothis peltigera* Schiff., eight specimens taken at light, two on 9th May and one each on 30th May, 4th June, 5th June, 16th June, 18th June and 5th September; *Rhodometra sacraria* L., one specimen taken at dusk on 14th September; *Palpita unionalis* Hübn., four specimens taken at light on 23rd August, 5th September, 8th and 9th October; *Agrotis puta* Hübn., one striated aberration taken at light in April 1957, with a typical example for comparison.

Mr. W. Blunt (*visitor*)—Examples of exotic Lepidoptera; also the following British Lepidoptera: *Catocala fraxini* L. and *C. nupta* L.

Mr. and Mrs. E. L. Bolton—Examples of lepidopterous varieties recently taken in Surrey: *Polyommatus icarus* Rott. ab. *livida* Gillm., male, greyish-white, possibly due to albinism (Pl. II, fig. 9), the underside is also interesting having madder brown lunules, taken by Mrs. M. V. Bolton drying its wings on a grass stem, August 1958; also a female ab. *obsoleta* Clark + a tendency towards ab. *radiata* Tutt (E.L.B.), September 1958. *Euphydryas aurinia* Rott., male ab. *suffusa* Frohawk, having a melanic appearance with blacked-in borders and centre areas of forewings, bred June 1956, and another male aberration caught in June 1957. *Dasychira pudibunda* L., male and female examples of ab. *concolor* Staud., which emerged during March and April 1958. Ova were obtained from a female in May 1957 which, although white in colour, had the forewings heavily speckled with brown dots. The larvae were 95% black form and 5% green form. These larvae were not forced and the resulting imagines were 25% normal with the remaining 75% ranging through dark grey to black. It would therefore seem that these insects are a melanic dominant. Unfortunately a large number, especially females, emerged deformed. The females in particular were very feeble. A number of black males were scratched on the forewings by normal males going up to them and actually pawing them with their forelegs. This was observed in a large cage. Numerous pairings were obtained but most of the ova were infertile and those few larvae which did hatch were too weak to survive. It is interesting to note that in no instance was it possible to obtain a black male and female pairing. No female emerged of the same appearance as the parent. The above remarks may perhaps explain the scarcity of major melanic forms in Lepidoptera. Mr. T. G. Howarth also had some of these larvae and obtained similar results. It is understood from Mr. Howarth that, prior to this, only one example of this form was in the British Museum (Nat. Hist.).

Lt.-Col. W. Bowater—The following Lepidoptera: *Laphygma exigua* Hübn., taken in a mercury vapour trap, 19.viii.58, in a Birmingham, War., garden; an alleged hybrid, *Catocala nupta* L. male × *C. fraxini* L. female; *Ecliptopera silaceata* Schiff., five taken in a trap, including one aberration (Pl. II, fig. 8); *Leucania unipuncta* Haw., three bred from Tresco, Scilly Isles, strain, F_4 generation.

Mr. S. R. Bowden—*Pieris napi* L. (Lep., Pieridae) a short- or broad-winged form which has appeared in two closely related 1958 broods and has been successfully paired. It appears to be inherited as a simple recessive. It was described, and named ab. *rotunda*, by N. T. Easton (1948, *Ent. Record*, **60**: 121-122).

Mr. R. F. Bretherton—(1) Selected Noctuidae (Lep.) from Kinloch Rannoch and Aviemore, Inv., 8/15.viii.58: including *Amathes castanea* Esp., *A. depuncta* L., *A. ditrapezium* Schiff., *Diarsia dahlii* Hübn., *Noctua* (*Triphaena*) *sobrina* Boisd., *N.*(*T.*) *janthina* Schiff. (aberration with the stigma outlined with white), *Apamea furva* Schiff., *Parastichtis suspecta* Hübn., *Plusia bractea* Schiff., *P. festucae* L., *P. iota* L. and *P. interrogationis* L. (2) Scarce immigrant Lepidoptera all taken at mercury vapour light at Ottershaw, Surrey: *Heliothis peltigera* Schiff., 9 and 23.v.58; *Rhodometra sacraria* L., 29.viii.58; *Acherontia atropos* L., 14.v.58.

Mr. H. Britten—Five drawers of Trypetidae (Dipt.), illustrating a method of mounting Diptera for display in cabinet drawers. Drawer 1. *Anastrepha* Schiner. Thirty-seven species of the 127 comprising this genus were shown, including para-types kindly sent by Dr. Alan Stone of the United States National Museum. Specimens exhibited were from Cuba, Venezuela, Peru, Mexico, Brazil, Trinidad, Panama, Argentina, Honduras, Puerto Rico, Jamaica and Florida. Drawer 2. Dacinae. Thirty-six species collected in the Sudan, Mozambique, Fiji, Australia, India, Kenya, Argentina, Mindanao, New Caledonia, Malaya, China, Hawaii, Formosa and Thailand, including para-types kindly sent by Dr. E. Hardy of Honolulu. Drawer 3. Trypetidae from the U.S.S.R., also specimens of the "Coffee Berry" Fruit Fly from the Belgian Congo with specimens of its Braconid parasite. Drawer 4. Trypetidae from the U.S.A., Canada, New Zealand and Cyprus. One species, *Urophora jaceana* (Hering), is a European species introduced into Canada and has become established there. Drawer 5. Trypetidae from Belgium, Sweden, Norway, Austria and Finland, including the "Mediterranean Fruit Fly" *Ceratitis capitata* (Weidemann) which is frequently imported into Finland in Oranges but has not become established, whereas the "Cherry" Fruit Fly has become a serious pest in the cherry orchards where it has become established, having been imported in cherries from Italy.

Mr. F. D. Buck—Representatives of the Australian genus *Sierotrana* (Col., Tenebrionidae) and specimens of an as yet undescribed genus in the tribe Helopinae (Col., Tenebrionidae) close to the genus *Omolipus*.

Group Captain L. W. Burgess—(1) *Maniola jurtina* L. ab. *semialba* Blackie, taken in the New Forest, Hants, 18.vi.57. (2) A series of Rhopalocera from North America collected in the period March 1955 to April 1957. The great majority were taken in the states to the east of the Great Plains, from Delaware, Pennsylvania, Virginia, North Carolina, Alabama and Florida. In addition a few specimens were obtained from California, Canada, Bermuda, and the Bahamas. A total of 81 different species were shown representing the Satyridae, Danaidae, Heliconiidae, Nymphalidae, Libytheidae, Riodinidae, Lycaenidae, Papilionidae, Pieridae and Hesperiidae.

Mr. P. J. Burton—*Abraxas grossulariata* L. (Lep., Geometridae), 20.viii.58, Salisbury, Wilts.; ab. *centralipuncta* Raynor with fasciated forewings and heavily radiated hindwings, with whitish ground colour (Pl. III, fig. 11).

Mr. H. E. Chipperfield—Moths from the sandhills and marshes of the Suffolk coast. Short series of *Euxoa cursoria* Hufn., *Agrotis vestigialis* Hufn., *Apamea oblonga* Haw., *Pyrrhia umbra* Hufn., *Procus literosa* Haw., *Arenostola elymi* Treits., all taken on marram grass heads at Southwold in 1958. *Nonagria sparganii* Esp. bred from pupae found in stems of *Typha latifolia* L. at Thorpness in 1951 and 1955 and a small specimen taken at light near Southwold in 1953. *Nonagria dissoluta* Treits. taken at light at Thorpness in August 1946. *Nonagria neurica* Hübn. and *Chilodes maritima* Tausch. taken at light among *Phragmites communis* Trin. at Walberswick in 1957 and 1958. *Arenostola brevilinea* Fenn, including one ab. *sinelinea* Farn, taken near Southwold at sugar and light in July 1953 and 1956. *Leucania albipuncta* Schiff. taken at light and sugar on some heathland near Woodbridge in September 1958; this species is found in E. Suffolk in most years, generally on the coastal heaths, but sometimes even in gardens in Stowmarket, some 20 miles from the coast.

Mr. L. Christie—(1) A gynandromorph ? of *Noctua* (*Triphaena*) *pronuba* L. (Lep., Noctuidae) taken in a mercury vapour trap, 18.ix.58, at Golspie, Sutherland. (2) A male stick insect, *Carausius morosus* (Phasmidae, Cheleutoptera).

Mr. E. W. Classey—See Mr. A. E. Gardner.

Major A. E. Collier—Three species of Lepidoptera with aberrations: *Maniola jurtina* L., a halved gynandromorph, Cranleigh, Surrey, 30.vi.58; *Aphantopus hyperantus* L. ab. *lanceolata* Shipp., two examples of the sixth generation, improved by selective breeding, with original wild female (8.vii.52) for comparison; *Lysandra coridon* Poda ab. *syngrapha* Kefer. + *punctata* Tutt, bred during 1958 from a male heterozygote (ab. *syngrapha*) × an ab. *punctata* female with no *syngrapha* gene. Genealogical tree from 1956 shown by representative imagines.

Mr. S. Coxey—Lepidoptera from various localities. From Aviemore, Inv.: *Orthosia gothica* L., *O. incerta* Hufn., *Achlya flavicornis* L., *Brachionycha nubeculosa* Esp. and *Xylena exsoleta* L. From Struan, Inv.: a series of *Poecilopsis lapponaria* Boisd. From the Breck district of Suffolk: *Polia nitens* Haw., *Tethea ocularis* L., *Noctua orbona* Hufn., *Meliana flammea* Curt., *Dypterygia scabriuscula* L., *Apamea sublustris* Esp., *Hadena bicolorata* Hufn. (*serena* Schiff.), *Heliothis viriplaca* Hufn. (*dipsacea* L.), *Sterrha muricata* Hufn., *Scopula rubiginata* Hufn., *Lithostege griseata* Schiff., *Xanthorhoë quadrifasciata* Clerck, *Heliophobus anceps* Schiff. and *Apamea inferta* Ochs. From Dungeness, Kent: *Hadena albimacula* Borkh., *Heliothis peltigera* Schiff. and two aberrations of *Arctia villica* L. bred from an extreme aberration taken at Dungeness last year. From the New Forest, Hants: *Catocala promissa* Schiff. and *Cleorodes lichenaria* Hufn. From N. Hants: *Leucania straminea* Treits. and *Plusia chryson* Esp. From Ham Street, Kent: a series of *Colobochyla salicalis* Schiff. From Buckinghamshire: a bred series of larvae of *Xanthorhoë biriviata* Borkh. reared on yellow balsam. From Bolton, Lancs.: a bred series of *Harpyia furcula* Clerk, a melanic series of *Gonodontis bidentata* Clerk, an aberration of *Spilosoma lubricipeda* L. with spots on the wing margins only, and examples of *Tiliacea citrago* L. and *Colotois pennaria* L. (bred). From Longridge, Lancs.: *Dyscia fagaria* Thunb. From Beetham, Westmor.: *Asphalia diluta* Schiff.

Mr. P. W. Cribb (visitor)—(1) Series of aberrations of Lepidoptera: *Euphydryas aurinia* Rott., bred, and *Melitaea athalia* Rott., bred (Pl. III, figs 3 and 4); a short series of *Maculinea arion* L., contrasting the normal sized examples with dwarf forms occurring in one valley in N. Devon (about one in four being dwarfed); a short series of *Cosymbia pendularia* Clerck (*orbicularia* Hübn.) (Pl. III, fig. 5), bred from the New Forest, Hants., near Fordingbridge, being the first generation from the wild and produced one-third plum-coloured; one male ab. *eos* Haw. of *Melitaea athalia* Rott., bred F_2 from an E. Sussex colony feeding

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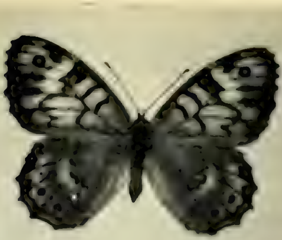
ANNUAL EXHIBITION, 25th October 1958.

1. *Pararge megera* L., T. D. Fearnehough. 2. *Pararge megera* L., T. D. Fearnehough. 3 and 4. *Melitaea athalia* Rott., underside and upperside, P. W. Cribb. 5. *Cosymbia pendularia* Clerck, P. W. Cribb. 6. *Chiasmia clathrata* L., A. E. Aston. 7. *Lomaspilis marginata* L., D. More. 8. *Parage megera* L., T. D. Fearnehough. 9. *Aphantopus hyperantus* L., P. W. Cribb. 10. *Argynnis selene* Schiff., Rev. J. N. Marcon. 11. *Abraxas grossulariata* L. ab. *centralipuncta* Raynor, P. J. Burton.



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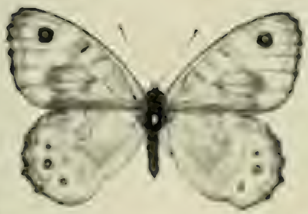

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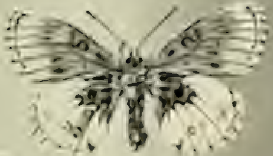

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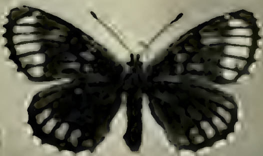

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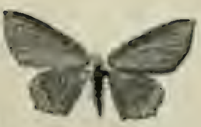

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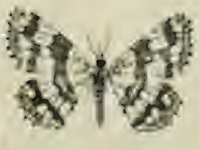

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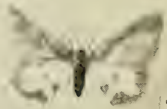

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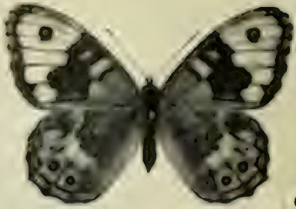

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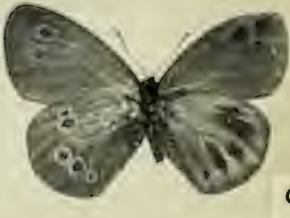

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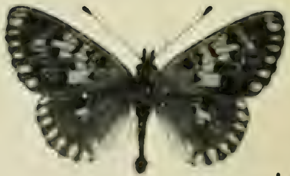

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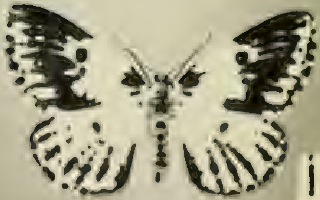


11

[Photographs by H. W. T. Tams.]

in the wild on *Veronica chamaedrys* L.; one *Aphantopus hyperantus* L., male (Pl. III, fig. 9), the markings being rayed on right side, taken in Abbots Wood, Nr. Hailsham, also some aberrations of *Argynnis aglaia* L., taken in N. Devon, ranging from dark examples to an albino form. (2) A photograph of an extreme aberration of *Pieris rapae* L. taken at Lewes, Sussex, this specimen the exhibitor donated to the Tring collection.

Mr. R. P. DEMUTH—A drawer of Noctuidae (Lep.) which were a selection of the insects taken from a mercury vapour light trap on a single night, 18.viii.58, at Glenmoriston in northern Inverness-shire. The night was warm, still and wet; there were about 1,500 moths in the trap. Of the Noctuidae, *Apamea monoglypha* Hufn. was the commonest, next *Noctua* (*Triphaena*) *sobrina* Boisd. in rather poor condition, then *Cerapteryx graminis* L. All the Noctuidae which occur in the Highlands at that time were present with the exception of *Amathes depuncta* L. Even *Apamea exulis* Lef. ab. *assimilis* Doubl. was there though well past its optimum date.

Mr. R. C. DYSON—*Agrotis ripae* L. (Lep., Noctuidae), a series bred from larvae collected during August 1957 at Dawlish, S. Devon, and from coastal areas in N. Devon near the estuary of the river Taw. The Dawlish specimens have the pink-and-orange form predominating, while those from N. Devon rarely produce these colours and are mainly dark with various shades of grey, particularly in the females. *Noctua* (*Triphaena*) *comes* Hübn. (Lep., Noctuidae), a series of 53 moths bred from 60 larvae collected near Aviemore, Inv., in May, 1958. Various forms were produced, with red predominating; five specimens of ab. *curtisii* Newm. were bred, one almost black. *Hadena lepida* Esp. (Lep., Noctuidae), part of a series bred from larvae collected during 1957. From the same batch of campion pods long series were also bred of the following three species: *Hadena conspersa* Schiff., *H. bicruris* Hufn., and *H. cucubali* Schiff.

Mr. T. R. EAGLES and Mr. F. T. VALLINS—A collection of fungi from Epping Forest, Essex, including *Pleurotus dryinus* (Pers.) Fr. (*corticatus* Fr.), *Lactarius vellereus* Fr., *Russula fellea* Fr., *R. lutea* Fr., *Cantharellus tubaeformis* (Bull.) Fr., *Flammula sapinea* Fr. (often regarded as a "pine" species but common in Epping Forest where there is no pine), *Cortinarius sanguineus* (Wulf.) Fr., *Hydnum repandum* (Linn.) Fr. and *Fistulina hepatica* Fr. ex Schaef., the Beefsteak Fungus.

Mr. R. C. EDWARDS—Some moths taken in Ireland between 29.vi. and 11.vii.58, showing some variation from English specimens. Also *Hypercallia christiernana* L. (Oecophoridae) taken in Co. Clare, Ireland; *Plusia ni* Hübn. and *Heliothis armigera* Hübn. taken at Westerham, Kent, during May and September 1958 respectively, and female *Nycterosia obstipata* F. taken in the Isle of Wight, 15.x.58.

Mr. R. ELDON ELLISON—A selection of British Moths taken during 1958, all from Eastbourne, Sussex, except where otherwise stated.

Migrants included *Hippotion celerio* L., *Laphygma exigua* Hübn., *Leucania vitellina* Hübn., *Plusia ni* Hübn., *Rhodometra sacraria* L., *Palpita unionalis* Hübn., and others. *Calophasia lunula* Hufn. from Dungeness, Kent, and *Lithophane leautieri* Boisd. were in short series; other resident species included *Eilema caniola* Hübn. from Sussex, *Angerona prunaria* L. ab. *pickettaria* Prout, male and female, from Ham Street, Kent, and striking forms of *Dasychira pudibunda* L. from Eastbourne, and *Bupalus piniaria* L. from the Breck Country on the Norfolk/Suffolk border.

Mr. R. Fairclough—Lepidoptera caught or bred during 1958: (1) *Xanthorhoë biriviata* Borkh., first brood caught in Bucks., 4th May, second brood bred in the third week of June, and third brood bred in the first week of August; *Sterrha vulpinaria* H.-S. (*rusticata* Schiff. auctt. nec Schiff.), Dartford, Kent, 5th July, second brood bred during September; *S. ochrata* Scop., and *Phalonia dipoltella* Hübn., Sandwich, Kent, 11th July; *Nyssia zonaria* Schiff., Conway, Caern., April; *Hydrelia testaceata* Don., Ranmore, Surrey, 29th June; *Heliothis maritima* Graslin, Chobham, Surrey, 19th July; *Euzophora neophanes* Durr., Horsell, Surrey, bred June; *Scoparia dubitalis* Hübn., Eastbourne, Sussex, 14th June; *Argyroploce arcuella* Clerck, E. Sussex, 7th June; a pale form of *Coenonympha pamphilus* L., E. Sussex, 24th May, with normal specimen for comparison; *Noctua* (*Triphaena*) *comes* Hübn., including one var. *curtisii* Newm., Culbin Sands, Moray. (2) *Noctua* (*Triphaena*) *sobrina* Boisd.; *Plusia bractea* Schiff.; *P. interrogationis* L.; *Scopula ternata* Schrank; *Thera cognata* Thunb.; *T. juniperata* L., bred, September; *Xanthorhoë munitata* Hübn.; *Carsia sororiata* Hübn. (*paludata* Thunb. nec L.); *Itame brunneata* Thunb.; *Gnophos myrtillata* Thunb., all Aviemore, 27th July-9th August. (3) A single example of each of the following species: *Scopula immorata* L., east Sussex; *Colobochyla salicalis* Schiff., Kent; *Heliothis peltigera* Schiff., Camber, Sussex; *Xylomyges conspicillaris* L., Taunton, Devon; *Apamea assimilis* Doubl., Aviemore, Inv.; *Nycterosia* (*Nyctosia*) *obstipata* F., Leigh, Surrey, 3rd September; *Parascotia fuliginaria* L., Leigh, Surrey, 7th July, the second record from this clay locality.

Mr. T. D. Fearnehough—Aberrations of *Pararge megera* L. including (1) ab. *transparens* Fearnehough (Pl. III, fig. 2), reared in F_1 generation from a female captured at Lindrick, S. Yorks., which was figured in 1950 (*Ent. Rec.*, **62**: 65, Pl. IV), and described in 1955 (*Ent. Rec.*, **67**: 329-330). (2) An aberrant female having greatly increased amounts of black scaling along the forewing nervules (Pl. III, fig. 1), reared in F_1 generation from a female captured at Swanage, Dorset, August 1957. (3) Six females with banded forewings (Pl. III, fig 8), obtained in F_2 generation, reared from a female aberration captured at Folkestone, Kent, May 1958. (4) A male underside having particularly well marked spots on the hindwings. (5) A male underside with banded hindwings and another with melanic hindwings, both reared from the same F_2 brood as the females above. None of the males in the brood has significant variation on the upperside.

Mr. D. W. **Ffennell**—A number of Lepidoptera taken during the last 21 years and not previously exhibited; *Pararge megera* L., a male heavily suffused with brown, Renvyle, Connemara, Ireland, 6.viii.46; *Colias croceus* Fourc., a buff male, Padstow, Cornwall, 2.ix.37; *Coenonympha tullia* Müll., a grey male, Cardiganshire, 25.vi.49; *Vanessa cardui* L. aberration; a brown female *Polygonia c-album* L. from Twyford, Hants., September 1942; *Clostera curtula* L., a male of uniformly chocolate colour, Winchester, Hants., 5.vi.51; three female *Plusia gamma* L. from Winchester, one small and pale, 22.vi.51, one black, 25.x.57, and one with the tail of the "Y" joining its left branch; a male *Hadena bicruris* Hufn., with scales largely absent symmetrically from the outer two-thirds of the wings; *Euchromius ocellea* Haw., a male, Winchester, 30.v.58; *Clepsis costana* F., an odd form; three examples of a small race of *Lysandra coridon* Poda, which was not uncommon in one locality near Hitchin, Herts., in 1940; the exhibitor was unable to find any of intermediate size, nor had he seen it there since.

Mr. J. **Firmin**—(1) Male aberration of *Euchloë cardamines* L. with wing tips pale lemon yellow, taken at Berechurch, Colchester, Essex, 18.v.58. (2) Male underside aberration of *Argynnis paphia* L. without the silver washing, this being replaced by brown, also brown spotting near the margins of the hindwings; reared from E. Suffolk stock, July 1955. (3) Male aberration of *Polygonia c-album* L. with the hindwings almost entirely black and with some black striation along the margins of the forewings; taken at Colchester, 21.vii.58; shown with ab. *hutchinsoni* Robson from the same locality. (4) Female aberration of *Maniola jurtina* L. with hindwings creamy white; captured at West Bergholt, Essex, July 1957. (5) Ab. *seminigrina* Tutt of *Limenitis camilla* L., captured in Suffolk, August 1956. (6) A dwarf female *Gonepteryx rhamni* L. captured by Mr. W. Simpson at Plaistow, Sussex, 25.v.58; shown with a typical female from the same locality.

Mr. Brian E. **Frost**—A selection of photographs of lepidopterous subjects taken over the last four months. Three photographs of a third instar larva of *Erebia epiphron* Knoch, feeding on *Poa annua* L., hatched from ova laid by a female captured in Perthshire in July 1958 (ex J. Firmin). A photograph of each of the following: pupa of *Strymonidia pruni* L., on a sprig of blackthorn, June 1958, reared from Monk's Wood, Hunts (ex J. Firmin); *Eumenis semele* L., feeding on bramble blossom, Berechurch, Colchester, Essex, August 1958; larva of *Sphinx ligustri* L., Colchester, August 1958; a second instar larva of *Lasiocampa quercus* L., feeding on hawthorn, Colchester, September 1958; a final instar larva of *Selenia lunaria* Schiff., on a branch of plum, Colchester, 1958; a pupa of *Selenia lunaria* Schiff., Colchester, 1958; an imago of *Plusia gamma* L., resting on oak bark at Colchester, October 1958.

Mr. A. E. Gardner and Mr. E. W. Classey—Maps, photographs, and the following insects taken during their expedition to Madeira from 8-22.xii.1957. Lepidoptera: *Pyrameis indica* s.sp. *occidentalis* Fldr., *Pararge xiphia* F., *Lycaena phlaeas* s.sp. *phlaeoides* Stgr., *Prodenia litura* F., and the larva of *Celerio euphorbiae* L. Diptera: *Milesia crabroniformis* F. Hymenoptera: *Sirex noctilio* F. and *Anthophora maderiae* Sichel. Neuroptera: *Formicaleon catta* F. Dermaptera: *Labidura riparia* (Pall.),, *Anisolabis maritima* (Gené), *A. annulipes* (Lucas), *Forficula auricularia* L., and form *forcipata* Steph. Dictyoptera: *Blatta orientalis* L., *Pycnoscelus surinemensis* (L.), *Ectobius panzeri* Steph., *Periplaneta americana* (L.), and *Leucophae maderae* (F.). *Mantis religiosa* (L.) is rare and only the oothecae were found. Saltatoria: *Sphingonotus rubescens* (Walk.), *Locusta migratoria* (L.), *Calliptamus madeirae* Uv., *Euchorthippus madeirae* Uv., *Chorthippus apicalis* (H.-S.), *Oedaleus decorus* (Germ.), *Aiolopus strepens* (Latr.), *A. thalassinus* (F.), *Homorocoryphus nitidulus* (Scop.), *Platycleis falx* (F.), *Metrioptera barrettii* (Burr), *Phaneroptera nana* s.sp. *nana* Fieb., *P. nana* s.sp. *sparsa* Stål (new to the Island), *Gryllus bimaculatus* (Deg.), *Gryllulus hispanicus* (Ramb.), and *Mogoplistes squamiger* (Fisch.). Coleoptera (all endemic species): *Scarites abbreviatus* Dej., *Calosoma maderae* F., *Zargus schaumi* Woll., *Calathus obesus* Colas, *C. vividus* F., *Nesarpalus gregarius* Fauv., *Cymindis maderae* Woll., *Odontonyx maderensis* Woll., *Pterostichus gracilipes* Woll., *P. bedelianus* Luts., *Colymbetes lanio* (F.), *Hesperophanes senex* (Woll.), *Lixus cheiranthi* Woll., *Hadrus alpinus* Woll., and the minute *Calobius heeri* Woll., found in the salt-water pools at Gorgulho. Odonata: A series of the endemic dragonfly *Sympetrum nigrifemur* (Selys) with the previously unknown larva.

Mr. P. J. Gent—An intersex example of *Saturnia pavonia* L., bred from a full grown larva collected in the New Forest, Hants, in August 1957 (Pl. II, fig. 1). The specimen is thinly scaled and the forewings are female. The left side hindwing has all male coloration apart from a wedge of female colour from the eye spot to the base, this is reversed on the right side hindwing, with a wedge of male colour to the eye spot on a female wing. The antennae are irregular and developed to about half-way between a typical male and female, a pair of which were shown for comparison.

Mr. B. Goater—Lepidoptera as follows: *Hadena albimacula* Borkh., Dungeness, Kent, found at rest on fence posts by day and visiting flowers of *Silene nutans* (L.) Wibel at dusk, 6.vi.58; *Arenostola morrisii* Dale, a series taken at dusk, Folkestone, Kent, 4.vii.58; *Dicycla oo* L., a series taken at sugar, Middlesex, July 1958; *Orthosia miniosa* Schiff., a series from the New Forest, Hants, at sallow blossom, April 1958; *O. gracilis* Schiff., varied specimens of the "red" form from the New Forest, 1958; *Cirrhia ocellaris* Borkh., part of a series bred from larvae obtained in poplar catkins, Surrey, April 1958; *Lithomoia solidaginis* Hübn., a series found at rest on fence posts, Newtonmore, Inv., August 1958;

Heliothis peltigera Schiff., a series bred from Sussex larvae, 1957 and 1958, including some very dark forms; and *Paracolax derivalis* Hübn., a series caught by day, mostly flushed from leafy brushwood, Sussex, July 1958.

Mr. B. S. Goodban and Mr. W. E. Minnion—A series of *Selenia bilunaria* Esp., including a melanic form from Cheshire stock which appears to have a complex genetic background; a series of *Dysstroma truncata* Hufn., bred from a melanic female from Mitcham Common, Surrey, further pairings failed to establish the genetics of the melanic form but the evidence suggests that it may be a simple dominant.

Mr. A. L. Goodson—See Dr. H. B. D. Kettlewell.

Mr. G. Haggett and Mr. A. J. Wightman—The following Lepidoptera: By Mr. G. Haggett—*Perizoma sagittata* F., a series of moths bred during 1957 and wild taken larvae preserved 1954-56, Norfolk; *Ortholitha mucronata* Scop. s.sp. *umbrifera* Prout, moths bred during the winter 1957-58 with preserved larvae found on Gorse, N. Devon; *O. plumbaria* F., moths caught in June 1957, N. Devon, on the same ground as *O. mucronata* s.sp. *umbrifera* Prout, with a preserved larva from Birmingham, Warw.; *Cosymbia puppillaria* Hübn., six generations of moths inbred 1957-58 from female captured on Tresco, Scilly Isles, by Mr. R. M. Mere, the variation ranging from pale unmarked moths to red banded and rosy flushed examples. By Mr. A. J. Wightman—*Aporophyla lutulenta* Schiff. ab. *luneburgensis* Freyer, with preserved larvae, Aviemore, Inv., 1958. By Messrs Haggett and Wightman—Lepidoptera reared or caught during 1958: *Nonagria neurica* Hübn. (*edelsteni* Tutt) bred, Walberswick, Suffolk; *Leucania unipuncta* Haw., bred for two generations from Tresco, Scilly Isles, females; *L. obsoleta* Hübn., bred from wild taken larvae, Wood Walton Fen, Hunts.; *Hadena conspersa* Schiff., dark coloured moths bred amongst many typical forms, from wild larvae, Tintagel, Cornw.; *Leuchochlaena hispida* Gey., bred from wild larvae, Portland, Dorset; *Arenostola fluxa* Hübn., taken at Mildenhall, Suffolk; *A. elymi* Treits., bred from Southwold, Suffolk, pupae; *Rhizedra lutosa* Hübn., selected forms taken emerging at Freshwater, I.o.W., including extreme ab. *postradiata* Cockayne. *Lithophane leautieri* Boisd. (*lapidea* Hübn. auctt nec Hübn.) taken at mercury vapour light around Freshwater; *Dasypolia templi* Thunb., forms taken at Freshwater in mercury vapour trap; *Hydrillula palustris* Hübn. a single example bred from Wood Walton, Hunts., larva; *Meliana flammea* Curt., examples bred from Norfolk larvae; *Agrotis exclamationis* L. ab. *paradoxa* Cockayne taken at Pulborough, Sussex, the type of this aberration was without data (*loc. incog.*). ? *Euxoa obelisca* Schiff. (or a very *obelisca*-like form of *E. tritici* L.) taken freshly emerged at Pulborough at a spot where for 30 years only *E. tritici* have been taken, although worked on many occasions for the fine forms of that species occurring there.

Mr. David Hardy and Mr Allan Kennard—A selection of the Macrolepidoptera taken in Iceland during July and August 1958 when on the Oxford Snaefellsnes Expedition: a variable series of *Diarsia* *festiva* Schiff.; a series of *Noctua* (*Triphaena*) *pronuba* L.; series of *Apamea exulis* Lef., together with specimens from Scotland, including ab. *assimilis* Doubl. for comparison, among others; a very variable series of *Dysstroma citrata* L. s.sp. *unicolorata* Staud. taken from bilberry and birch localities, including ab. *thingvallata* Staud.; *Operophtera brumata* L., taken on 3rd July; *Rheumaptera hastata* s.sp. *thulearia* H.-S.; *Xanthorhoë munitata* Hübn.; *X. designata* Hufn. s.sp. *islandicana* Staud.; *Hydriomena furcata* Thunb. s.sp. *saga* Prout; *Perizoma alchemillata* L., a species new to Iceland; *Eupithecia nanata* Hübn. s.sp. *gelidatoides* Warnecke; *E. satyrata* Hübn. and a variable series of *Entephria caesiata* Schiff. s.sp. *glaciata* Kef.

Commander G. W. Harper—(1) Some interesting Lepidoptera taken in N. Wales, July 1958: series of *Eumenis semele* L. race *thyone* Thompson and *Plebejus argus* L. s.sp. *caernensis* Thompson from Great Orme's Head, *Amathes ashworthii* Doubl., *Tethea fluctuosa* Hübn., *Miltochrista miniata* Forst., *Bomolocha crassalis* F., *Sterrha eburnata* Wocke., and *Eupithecia plumbeolata* Haw., from the Portmadoc district. (2) A series of the northern race of *Sterrha muricata* Hufn. and a melanic *Amathes ditrapezium* Schiff., from Witherslack, Westmorland. (3) Series of distinctive forms of moths taken in Unst., Shetland, in August 1958. A portable lightweight generator was used to operate a mercury vapour light on the most northerly coast in the British Isles, facing north, which secured a few well-marked specimens of *Euxoa cursoria* Hufn.; a fine series of *Amathes glareosa* Esp. s.sp. *edda* Staud. was also taken together with a single typical *glareosa*, the only one seen among 80 individuals examined; a series of *Diarsia festiva* Schiff. race *thulei* Staud., and *Colostygia didymata* L., very well-marked and distinctive races. (4) A remarkable aberration of *Allophyes oxyacanthae* L., the first seen in Scotland, taken in a mercury vapour trap at Newtonmore, Inv., in September 1958, melanic pigment covers the base of the forewings and obliterates the silver crescent mark and also gives a dark border to the hindwings (Pl. II, fig. 3); a dark melanic specimen of *Hydraecia crinanensis* Burr, taken on ragwort blossom at Newtonmore in October 1958 was also shown.

Mr. C. R. Haxby—Lepidoptera as follows: *Selenia bilunaria* Esp., *Diarsia dahlii* Hübn., *Laothoë populi* L. and *Apatele megacephala* Schiff.

Mrs. E. A. Heslop—A very fine, large male *Apatura iris* L. taken in Wiltshire during July 1958.

Mr. I. R. P. Heslop—(1) Two white Vanessid (Lep.) aberrations: a female *Precis octavia* Cramer, a unique example of the "alba" form, taken in Nigeria by the exhibitor, 31.viii.41. The name *kuali* Heslop has been proposed for this form after the locality, Kwale, in which this insect was taken. An extreme white aberration (male), *bellieri* Cabeau of *Aglais urticae* L., taken by the exhibitor in his garden at Burnham-on-Sea, Somerset, 20.viii.55. Both these insects are the subject of a paper, "White varieties of two Vanessid Butterflies", (1956, *Entomologist* **89**: 198). Typical examples were shown for comparison. (2) An extreme melanic aberration of *Panaxia dominula* L. (Pl. II, fig. 4), bred from a batch of 12 larvae taken in Wilts, 1.v.57, emerging 9.vi.57; the other nine examples which emerged from this batch were normal.

Mr. T. J. Honeybourne—Living larvae and pupae of *Antheraea pernyi* Guer. and *Philosamia cynthia* Drury (N. American form).

Mr. J. O. T. Howard—Lepidoptera taken in S.W. Pembrokeshire, September 1958: *Aporophyla australis* Boisd., a short series greyer and with considerably more pronounced black markings than specimens taken in Kent; and *Celerio livornica* Esp.

Mr. and Mrs. T. G. Howarth—The following species of Lepidoptera, Heterocera taken at mercury vapour light at Arkley, Hertfordshire during 1958: *Hippotion celerio* L., a perfect male taken at 9.30 p.m. on the 3rd October, apparently only the second record for the county; *Agrotis exclamationis* L., a series showing some extreme variations, including a specimen with the orbicular stigmata obsolete, another with them reduced and others with them enlarged and confluent with the reniform stigmata; *Tethea ocularis* L., a series including pale and melanic forms; *Heliothis peltigera* Schiff., a pale female taken on 13th June. *Leucania unipuncta* Haw., a selection from several inbred broods (F_1-F_5), the original females were taken in the Scilly Isles in 1957 by Mr. R. M. Mere. The series exhibited showed a very remarkable range of variation in both markings and ground colour. The former could be divided into roughly two types—one with the prominent white spot in the centre of the forewing present—the other with this spot absent. The specimens of this latter form also had their hindwings, fringes and abdomina a beautiful dark grey and had an overtone of this same tint affecting all the various shades of ground colour which ranged from the usual greyish brown to a deep mahogany red; a bred specimen of *Arctia caja* L. exhibiting extreme homoeosis in both hindwings, i.e. there are patches of brown and white corresponding to the forewing markings situated in the basal and discal areas of the hindwings and extending outwards to the anal angles and arranged more or less symmetrically.

Mr. G. E. Hyde—British Lepidoptera as follows: *Nymphalis io* L., *Ochlodes venata* Br. & Grey, *Maniola jurtina* L. a pale male, *Diarsia dahlii* Hübn., *Anaitis plagiata* L., *Hydrillula palustris* Hübn., *Catocala fraxini* L. an aberration, *Plusia iota* L., *Anarta cordigera* Thunb., *Hama albicolon* Hübn., and *Agrotis ipsilon* Hufn.

Captain R. A. Jackson—Ab. *lacticolor* Leeds + *suffusa* Leeds of *Maniola jurtina* L., and a specimen of *Leucania loreyi* Dup. taken at sugar at Titchfield Haven, Hants., 10.ix.58. A variable series of *Dyscia fagaria* Thunb. and a short series of *Dicycla oo* L., including the ab. *renago* Haw. both from Surrey, and two specimens of *Heliothis peltigera* Schiff., taken at light in Wilts. during May and June respectively. An example of *Cucullia absinthii* L., the first recorded specimen from Wilts., and a female *Procris globulariae* Hübn. bred *ab ovo*, also from Wilts.

Mr. S. N. A. Jacobs—Microlepidoptera collected during July 1958, mostly in the French Pyrenees and on the Spanish Costa Brava.

Mr. F. V. L. Jarvis—An exhibit of *Aricia agestis* Schiff. (Lep., Lycaenidae) showing: (1) the effect of low temperature treatment of the pupae in altering the normal wing pattern. On the upper surface the principal effects were to reduce the orange marginal lunules and increase the tendency for white scaling around the forewing discoidal spot. On the undersurface alteration took the form of obsolescence with some specimens of extreme ab. *caeca* Courv. Normal controls from the same broods raised at 60-65° F. were shown for comparison. (2) Live specimens of a total third emergence obtained by submitting ova and larvae to 16 hours of light in each day were shown against a control portion of the brood in larval diapause. The diapause larvae had been kept outdoors with only the seasonal daylight. (*See Transactions*, pp. 94-103.) (3) Three new larval foodplants: *Geranium rotundifolium* L. (Round Leaved Cranesbill), *G. molle* L. (Dove's Foot Cranesbill) and *G. sanguineum* L. (Bloody Cranesbill). (4) A coloured drawing of the adult larvae of *Aricia agestis agestis* Schiff. (southern England) and *A. agestis artaxerxes* F. (Scotland).

Mr. C. Keith-Johnson—A few Lepidoptera from a N. London garden, Autumn 1958, including *Rhodometra sacraria* L., taken at light on 13th September.

Mr. Alan Kennard—See Mr. David Hardy.

Dr. H. B. D. Kettlewell and Mr. A. L. Goodson—Sixteen colour forms of *Cosymbia puppillaria* Hübn. from grey to dull red, bred by Dr. Kettlewell, January to February 1958, ex ova, Scilly Isles; *Amathes c-nigrum* L., asymmetrical aberration (Pl. II, fig. 6), Tring, Herts, 1.vii.58, A. L. Goodson, and another symmetrical ab. of the same pattern from the Cuckmere Valley, Sussex, 10.x.58, Dr. Kettlewell; *Noctua* (*Triphaena*) *pronuba* L., an example of extreme homoeosis (Pl. II, fig. 2), Sheringham, Norfolk, 31.viii.58, P. R. Clarke; *Plusia gamma* L. ab. *nigricans* Spuler, Tring, 8.ix.58, A. L. Goodson; *Anaitis efformata* Guen. ab. *fimbriata* Cockayne, Tring, 17.viii.58, A. L. Goodson; *Notodonta ziczac* L., aberration contrasting colours, Tring, 17.vi.58; *Phlogophora meticulosa* L. ab. *fumosa* Cockayne, Penmaenmawr, Caern., P. N. Grinling; *Tholera cespitis* Schiff. ab. nov., cream and grey pattern (Pl. II, fig. 7), Tring, 17.viii.58, A. L. Goodson; *Zanclognatha cribrumalis* Hübn., melanic aberration with typical form for comparison, Wicken Fen, Cambs., 8.vii.58, A. L. Goodson.

Mr. P. H. Lawson and Mr. M. H. Vignoles—Some spring butterflies from Ireland: *Pieris napi* L., Co. Kerry, May 1958; *Euchloë cardamines* L., Co. Kerry, May 1958; *Leptidea sinapis* L., Co. Waterford, May 1958; also *Lasiocampa quercus* L. ab. *callunae* Palmer, bred from nearly full grown larvae found in Co. Kerry, May 1958, which emerged between 9 and 25.vii.58.

Miss Vanessa Leston—The fly *Crataerina pallida* (Latr.) taken in a N.W. London house, 29.vii.58.

Miss C. A. McDermott—A collection of Lepidoptera made in New Hampshire and Maine, U.S.A., during July and August 1958.

Mr. G. E. L. Manley—Lepidoptera obtained during the 1958 season. The larvae were preserved by Mr. H. E. Hammond. (1) Insects caught near Eastbourne, Sussex; *Agrotis exclamationis* L., three aberrations; *Leucania conigera* Schiff., natural variation; *Laphygma exigua* Hübn., one taken in a mercury vapour trap in September; *Catocala promissa* Schiff., one taken in a mercury vapour trap, a most unusual Sussex record. (2) Three bred series of immigrant species: *Leucania unipuncta* Haw., with a larva, descendants from females taken by Mr. R. M. Mere in the Scilly Isles during 1957; *Heliothis peltigera* Schiff., with selected forms and ten larvae, bred from wild larvae collected at Eastbourne; *Laphygma exigua* Hübn., with four larvae, being the F_2 generation from a female taken by Mr. H. C. Huggins in the Scilly Isles. (3) Short series bred from wild larvae of resident species: *Amathes xanthographa* Schiff., Portland, Dorset and Torquay, Devon, showing extensive variation; *A. glareosa* Esp., a large race from Ashford, Kent; *Nonagria sparganii* Esp., Lewes, Sussex; *Leucania pudorina* Schiff., Ashford; *L. littoralis* Curt., Dawlish, Devon and Littlehampton, Sussex.

Lt. Col. and Mrs. W. B. L. Manley—Lepidoptera from France and Spain taken between 19th July and 24th August 1958.

(1) A male *Parnassius apollo* L. s.sp. *escalerae* Rothschild with all red markings and nearly all black markings missing. It could be described as an extreme example of ab. *novarae* Oberthur. Taken near Bronchales (Teruel, Spain) at an altitude of 5,250 feet on 8th August.

(2) Representatives of 25 species of Lycaenidae, including *Lysandra arragonensis* Gerh. from Teruel and Huesca; *L. caerulescens* Tutt from Teruel; *L. caelestissima* Verity and the rare blue female *deliciosa* de Sag. from Teruel; *L. coridon* Poda s.sp. *galliae* Verity and the blue female *syngrapha* Kef. from Dompière-sur-Mer (Charente-Infér., France); *L. bellargus* Rott. s.sp. *pictonensis* Hemming and the blue female from Dompière-sur-Mer. Also included was a series from Huesca of the insect described by de Sagarra as *L. corydonius asturiensis* and its blue female *syngraphoides* de Sag. It should be noted, however, that the British Museum (Natural History) places this subspecies (from Asturia) under *L. caelestissima asturiensis* de Sag. but the exhibitors think that it is in fact a separate species.

(3) *Colias hyale* L. from Dompière-sur-Mer, a female with the discoidal spot on the undersides of the forewings completely absent.

(4) *Erebia gorgone* Boisd., *E. manto* Esp. ab. *constans* Eiff. and *E. lefebvrei* Boisd. from Hautes Pyrénées and *E. zapateri* Oberthur ab. *castiliana* Romei from Teruel.

Rev. J. N. Marcon—Aberrations of three species of Lepidoptera: *Argynnis euphrosyne* L., Sussex, May 1958, a female with the spots on the upper forewings, from the sub-median band to the body, largely coalesced and forming a central black patch. *Argynnis selene* Schiff., Sussex, June 1958, a male with the hindwings black save for rayed fulvous border and discoidal spots; forewings from the sub-median band to marginal spots largely melanic (Pl. III, fig. 10). *Maniola jurtina* L., Sussex, August and September 1958, one albino female of a unicolorous golden hue, one female with forewing and hindwing borders rayed with white, one melanic male, with a deformed patch on right hindwing which, with its darker black fringed by fulvous, gives the impression of homoeosis.

Mr. Robin Mere—Some bred Lepidoptera from Tresco, Scilly Isles. Thirty-seven *Rhodometra sacraria* L. showing colour variation induced by prolonging the pupal period by means of cold; one typical (F_2) and seven melanic (F_4 and F_5) *Leucania unipuncta* Haw. bred in conjunction with Mr. R. I. Lorimer; three *Crocidosema plebeiana* Zell., some of the first bred British specimens; five *Nothris congressariella* Bruand, the first bred British specimens.

Mr. H. N. Michaelis—Hymenoptera Symphyta: Species from Lancashire and Cheshire including: *Xiphydria camelus* (L.) bred from a birch branch, *Dolerus bimaculatus* (Geof.), *D. gonager* (F.), *Apethymus abdominalis* (Lepeletier), *Rhadinoceraea micans* (Klug), *Phymatocera aterrima* (Klug). Species from Malham, Yorks.: *Trichiosoma latreillii* Leach, *Abia candens* Konow, *Pristiphora testacea* (Jurine) bred from birch, *P. quercus* Hartig bred from birch, *P. fulvipes* (Fall.), *Nematus oligospila* Foerst. bred from *Salix*, *N. ponojense* (Heller), *N.* (*Pteronidea*) *ferruginea* (Foerst.) bred from *Salix*. Lepidoptera: *Procus strigilis* Clerck and *P. latruncula* Schiff., from a Manchester garden showing the ratio of species as 100:45; *Alucita spilodactyla* Curt., Deganwy, N. Wales; *Witlesia pallida* Steph. with dark rayed forewings from Wilmslow, Cheshire; *Philedonides prodromana* Hübn., from Buxton, Derby, found flying in plenty between 1800 hours and 1900 hours, 30.iv.58; *Gelechia boreella* Dougl. from Malham, Yorks., previously only recorded from Scotland.

Mr. W. E. Minnion—See Mr. B. S. Goodban.

Mr. David More—Some varieties and unusual forms of Lepidoptera, all taken wild: *Heliothis maritima* Gras. s.sp. *septentrionalis* Hoff., *Parasemia plantaginis* L., *Lomaspilis marginata* L. (Pl. III, fig. 7), *Anerastia lotella* Hübn., *Orthosia gothica* L., *Gastropacha quercifolia* L., *Arctia caja* L., *Spilosoma lubricipeda* L. and *Chiasmia clathrata* L.

Mr. L. Parmenter—A box of Diptera to illustrate their habits.

Mr. R. E. Parsons—A small collection of butterflies from Grindelwald, Wengen Alp, Bunglauennen and other localities in the Swiss Bernese Oberland.

Mr. J. H. Payne—*Maniola jurtina* L. ab. *anommata* Verity female and *Strymonidia pruni* L. a female aberration, both from Northants.

Mr C. J. Pearce—*Nonagria sparganii* Esp., taken during August 1957, and August and September 1958, in a sand pit in N.E. Essex.

Mr. N. B. Potter—Series of lepidopterous aberrations taken during 1958 in Wilts. and Dorset. (1) Forms of *Lysandra coridon* Poda. Male upperside aberrations: *caeruleo* Tutt, *ultracaeruleo* B. & L., *punctatamargino* B. & L., *ultrapunctata* B. & L., one approaching ab. *pulla* B. & L., and two colour aberrations. Female upperside abberrations: *inaequalis* Tutt, *punctata* Tutt, *lutescens* B. & L., *auronulla* B. & L., *postimpar* B. & L., *infrasemisyngrapha* B. & L., and an asymmetrical ab. *syngrapha* Kef. Male underside aberrations: *fowleri* South, *glomerata* Tutt, *confluentiae* Courv. + *glomerata* Tutt, *postbielongata* B. & L., *discoidajuncta* B. & L., *obsoleta* Tutt, *postcaeca* B. & L., *caeca* Courv., *alboradiata* B. & L., and *albescens* Cockerell. Female underside aberrations: *nigrescens* B. & L., *quinterratica* B. & L., *antijuncta* B. & L., *antistriata* B. & L., *lunaextensa* B. & L., *alboparaellela* B. & L. + *antico-juncta* Tutt, *discreta* Tutt, *glomerata* Tutt + *centriquinta* Leeds + *postsinis-transformis* B. & L., *partimflavescens* B. & L.? *postdex-alba-limbojuncta* B. & L. and *antisinis-discoidalis-nulla* B. & L. (2) *Aricia agestis* Schiff. aberrations including *obsoleta* Tutt; *Polyommatus icarus* Rott. aberrations including *limbojuncta* Courv. and one with left wing *crassipuncta* Courv., also *confluens* Tutt, *obsoleta* Clark, *discreta* Tutt, and one similar to the ab. *confluentiae* Courv. of *Lysandra coridon* Poda. *Plebejus argus* L. aberrations including *costajuncta* Tutt. *Lysandra bellargus* Rott. female aberrations including *ceronus* Esp., a male upperside *metallica* Tutt and one similar to ab. *pulla* B. & L. of *Lysandra coridon* Poda. Male underside aberrations including: *obsoleta* Tutt and *addenda* Tutt. Female underside aberrations including *aurantia* Tutt and *semiarcuata* Courv.

Major-General A. L. Ransome—Lepidoptera taken in Hampshire (with the exception of one from Dorset): *Maniola jurtina* L., male upperside ab. *partimtransformis* Leeds; female underside aberrations including one dark example and one thinly scaled specimen. *Cupido minimus* Fuess., male upperside ab. *minor* Tutt and a female underside ab. *postobsoleta* B. & L. *Plebejus argus* L., male upperside ab. *partimtransformis* B. & L., and female undersides showing various minor aberrations. *Aricia agestis* Schiff., both male and female underside aberrations including two with top submedian spot elongated, and one *crassipuncta* Tutt + *discreta* Tutt. *Polyommatus icarus* Rott., female upperside ab. *albicosta* Tutt and a very blue form of female. *Lysandra coridon* Poda, male uppersides, one darker than the typical form, one *latiora* B. & L.; female uppersides, two examples with homoeosis; female undersides, including one dark, one *albescens* Cockerell + *anticaeca* B. & L., one *albescens* Cockerell + *postcaeca* B. & L., one *albescens* Cockerell + *postdiscoidalisnulla* B. & L., one *alba* B. & L. + *ultrafowleri* B. & L. and a female underside *fulvescens* Tutt.

Mr. W. Reid—Lepidoptera as follows: A series of *Plusia ni* Hübn., bred from a female taken in Switzerland 13.v.58, eggs laid 14.v.58, hatched 22.v.58, and the first imago emerged 24.vi.58; *Ceramica pisi* L., a dark form from Sheffield, Yorks.; *Tiliacea aurago* Schiff., bred from Sheffield female; *Enargia paleacea* Esp., two typical and two dark forms from Sheffield; *Gortyna* (*Hydraecia*) *petasitis* Doubl., in trap, Sheffield; *Zygaena purpuralis* Brün., from Co. Clare, Ireland, June 1958; *Zygaena filipendulae* L., with confluent marginal spots, Co. Clare, June 1958; *Crocallis elinguaria* L., Kincraig, Inv., August 1958; *Noctua* (*Triphaena*) *sobrina* Boisd., Kincraig, August 1958; *Plusia bractea* Schiff., Kincraig, female taken 4.viii.58, eggs laid 5.viii. 58, hatched 16.viii.58, first imago emerged 17.ix.58; *Stauropus fagi* L., three from Killarney, June 1958, and one bred 1957 from Kent (black); *Leucania unipuncta* Haw., bred November 1957 from female taken by Mr. Austin Richardson in Scilly Isles; *Hyloicus pinastri* L., bred 1958 from Kent female, in pupal state for three winters; *Calophasia lunula* Hufn., bred Dungeness, Kent, larvae collected during 1957; *Apamea sordens* Hufn., dark forms from Sheffield; *Apatele alni* L., dark forms from Sheffield and light forms from Killarney, 1958; *Spilosoma lubricipeda* L., Killarney, 1958; *Hadena caesia* Schiff., two from Tramore, Waterford, and two from Doolin, Co. Clare, June 1958; *Apatele euphorbiae* Schiff. s.sp. *myricae* Guen., three bred ab. *ovis* from Aviemore, Inv., and one from Doolin, Co. Clare, June 1958; *Heliophobus anceps* Schiff., purple form from Waterford, June 1958; *Hadena lepida* Esp., Tramore and Doolin, June 1958; *Anepia irregularis* Hufn., bred from ova, female taken at Mildenhall, Suffolk, 1957; *Venusia cambrica* Curt., bred series 1958, from Goyt Valley, Cheshire; and *Laphygma exigua* Hübn., in trap at Holyhead, Anglesey, 11.viii.58.

Mr. A. W. RICHARDS—Three specimens of *Nymphalis io* L. ab. *belisaria* Oberth., bred July 1958; seven specimens of *Aglais urticae* L., taken or bred in 1958, including ab. *nigra* Tutt, ab. *semi-nigra* Frohawk, and one entirely lacking the blue lunules (a very rare form). One specimen of *Vanessa cardui* L. ab. *inornata* Brams of a semi-transparent appearance. Three melanic *Semiothisa liturata* Clerck, taken in 1958; *Plusia ni* Hübn., taken 9.viii.58; short series of *Plusia interrogationis* L., from Derbyshire and *Euxoa tritici* L., from Hampshire. Aberrations of *Dysstroma truncata* Hufn., a form in which yellow is replaced by dark ochre; an aberration of *Thera obeliscata* Hübn. having a single costal dot representing the bar.

Mr. AUSTIN RICHARDSON—(1) Type specimens of the following Lepidoptera: *Tethea fluctuosa* Hübn. ab. *bifasciata* Richardson, a male from Cinderford, Glos., 20.vi.55 (1958, *Entomologist*, **91**: 211); *Drepana lacertinaria* L. ab. *conjuncta* Richardson a female from Aviemore, Inv., bred March 1943 (1952, *Ent. Rec.*, **64**: 272); *Bena fagana* F. s.sp. *britannica* Warren ab. *bilinea* Richardson, allotype female from Ham Street, Kent 8.ix.49, and ab. *argyrozona* Richardson female from Forest of Dean, Glos., June 1932 (1952, *Ent. Rec.*, **64**: 271); *Sarrothripus revayana* Scop. ab. *aurana* Richardson, male, Cirencester, Glos., 4.xii.40 (1952, *Ent. Rec.*, **64**: 273); *Apatele rumicis* L. ab. *striata* Richardson, male, Ham Street (1958, *Entomologist*, **91**: 211); *Euxoa tritici* L. ab. *fasciata* Richardson, male, Stroud district, Glos., July 1945 (1952, *Ent. Rec.*, **64**: 272); *Amathes alpicola* Zett. s.sp. *alpina* Steph. ab. *suffusa* Richardson, female, Aviemore, bred June 1946 (1952, *Ent. Rec.*, **64**:

272); *Amathes xanthographa* Schiff. ab. *semifasciata* Richardson, male, Tresco, Scilly Isles, 17.ix.56 (1958, *Ent. Gaz.*, **9**: 129); *Anaplectoides prasina* Schiff. ab. *demuthi* Richardson, holotype male, allotype female, Cannock, Staffs., bred December 1953 (1958, *Entomologist*, **91**: 211); *Hadena capsophila* Dup. ab. *obsolescens* Richardson, female, Kinsale, Cork, bred 18.vi.38 (1952, *Ent. Rec.*, **64**: 272); *Thalpophila matura* Hufn. ab. *trescoensis* Richardson, type and paratype males, Tresco, September 1956 (1958, *Ent. Gaz.*, **9**: 128); *Procus literosa* Haw. ab. *aethalodes* Richardson, male, Strensall, Yorks., 31.vii.39 (1940, *Entomologist*, **73**: 136); *Eumichtis lichenea* Hübn. s.sp. *scillonea* Richardson, holotype male, Tresco, September 1957, and allotype female, also Tresco, bred October 1957 (1958, *Ent. Gaz.*, **9**: 129); *Hydraecia paludis* Tutt ab. *obsoleta* Richardson, female, Stroud district, 27.viii.49 (1952, *Ent. Rec.*, **64**: 272); *Gortyna* (*Hydraecia*) *micacea* Esp. ab. *aurantia* Richardson, male, Forres, Moray, 19.viii.38 (1952, *Ent. Rec.*, **64**; 272); *Leucania unipuncta* Haw. ab. *nigra-suffusa* Richardson, female, Tresco, 17.ix.57 (1958, *Ent. Gaz.*, **9**: 128); *Orthosia incerta* Hufn. ab. *plumbea* Richardson, male, Stroud district, 21.iii.49 (1952, *Ent. Rec.*, **64**: 272); *Orthosia munda* Schiff. ab. *flavo-linea* Richardson, female, Stroud district, May 1953 (1958, *Entomologist*, **91**: 212); *Orthosia gracilis* Schiff. ab. *nigrolinea* Richardson, male, Stroud district, May 1954 (1958, *Entomologist*, **91**: 212); *Calophasia lunula* Hufn. ab. *extensa* Richardson, male, Dungeness, Kent, bred June 1955 (1958, *Entomologist*, **91**: 212); *Heliothis peltigera* Schiff. ab. *omicronata* Richardson, male, Dungeness, Kent, bred July 1948 (1958, *Entomologist*, **91**: 212); *Ortholitha mucronata* Scop. s.sp. *umbrifera* Prout ab. *costijuncta* Richardson, female, Newent, Glos., bred December 1946 (1952, *Ent. Rec.*, **64**: 270); *Anaitis plagiata* L. s.sp. *scotica* Richardson, male, Dalwhinnie, Inv., August 1946 (1952, *Ent. Rec.*, **64**: 269); *Chesias rufata* F., s.sp. *scotica* Richardson, female, Aviemore, Inv., bred June 1947 (1952, *Ent. Rec.*, **64**: 271); *Dysstroma citrata* L. ab. *obsolescens* Richardson, male, Aviemore, August 1943 (1952, *Ent. Rec.*, **64**: 271); *Rheumaptera hastata* L. ab. *diluta* Richardson, female, Dalwhinnie, bred April 1949 (1958, *Entomologist*, **91**: 212); *Hydriomena furcata* Thunb. ab. *exquisita* Richardson, female, Rannoch, Perthshire, 8.viii.38 (1952, *Ent. Rec.*, **64**: 270); *Eupithecia linariata* Schiff. ab. *praerupta* Richardson, holotype male, allotype female, Boscastle, Cornwall, bred July 1947 (1952, *Ent. Rec.*, **64**: 271); *Gymnoscelis pumilata* Hübn., ab. *obsolescens* Richardson, female, Stroud district, July 1949 (1952, *Ent. Rec.*, **64**: 271); *Orthonama lignata* Hübn., ab. *fasciata* Richardson, male, Witherslack, Westmorland, 6.viii.38 (1952, *Ent. Rec.*, **64**: 271); *Erannis defoliaria* Clerck ab. *praeclara* Richardson, male, Stroud district, December 1947 (1952, *Ent. Rec.*, **64**: 269); *Phigalia pilosaria* Schiff. (*pedaria* F.) ab. *fasciaria* Richardson, male, Forest of Dean, Glos., 4.ii.39 (1952, *Ent. Rec.*, **64**: 269); *Cleora cinctaria* Schiff. s.sp. *bowesi* Richardson, holotype male, Struan, Perthshire, 20.iv.43, allotype female, Struan, 20.iv.45 (1952, *Ent. Rec.*, **64**: 269); *Cleora cinctaria* Schiff. ab. *berylaria* Richardson, male, Struan, 19.iv.46 (1952, *Ent. Rec.*, **64**: 269); *Boarmia roboraria* Schiff. ab. *illustris*

Richardson, male, Newent, 3.vi.46 (1952, *Ent. Rec.*, **64**: 269); *Ectropis consonaria* Hübn. ab. *waiensis* Richardson, holotype male, allotype female, Forest of Dean, 7.v.39 (1940, *Entomologist*, **73**: 73). (2) Two aberrations as yet undescribed: *Thalpophila matura* Hufn. ab. nov. having all darker markings a bright brownish-red, Tresco, Scilly Isles, September 1956, and *Leucania impura* Hübn. ab. nov., having conspicuous light brown wedge-shaped areas adjacent to the margins of the hindwings, Tresco, bred June 1957. (3) Lepidoptera taken or bred during 1957-58: *Aphantopus hyperantus* L. khaki-coloured aberration, Glos.; *Argynnis selene* Schiff., a short series of lightly marked forms, Caernarvon; *Maniola jurtina* L., a series of ten of the very large and bright s.sp. *cassiteridum* Graves, Scilly Isles; *Arctia caja* L. a specimen with yellow hindwings, bred Scilly Isles; *Spilosoma lubricipeda* L. (*menthastri* Esp.), an aberration having blotches on hindwings, Glos.; *Eilema complana* L., six examples with suffused hindwings, approaching *E. sericea* Gregs., five from Caern., and one from the Scilly Isles; *Colocasia coryli* L. ab. *melanotica* Haverkampf, 15 bred, Bucks; *Agrotis ripae* Hübn., three bright specimens, bred Scilly Isles; *A. exclamationis* L. ab. *plaga* Steph., Glos.; *A. vestigialis* Hufn., seven brown forms, Oxon.; *Peridroma porphyrea* Schiff., ab. *nigrocosta* Tutt, a strongly contrasted aberration, Scilly Isles; *Eumichtis adusta* Esp., seven, including large dark forms, Merioneth; *Leucania vitellina* Hübn., two, Scilly Isles; *Laphygma exigua* Hübn., a short bred series with ten blown larvae showing various forms, Scilly Isles; *Lithophane leautieri* Boisd. (*lapidea* Hübn. auctt. nec Hübn.), 21 from Isle of Wight; ?*Eublemma ostrina* Hübn., Scilly Isles (or ?*E. flavida* a non-British species); *Plusia ni* Hübn., Glos., second county record; *Cosymbia puppillaria* Hübn., 18 bred F_4 generation in January and February, showing brighter orange coloration than F_1-F_3, the two brightest being the first to emerge, Scilly Isles; *Rhodometra sacraria* L., two from Scilly Isles and one from S. Devon; *Xanthorhoë spadicearia* Schiff., a melanic aberration, Glos.; *X. montanata* Schiff., an aberration with very reduced band, Glos.; *Euphyia cuculata* Hufn., 13 with two blown larvae, bred Bucks.; *Crocallis elinguaria* L., a suffused aberration from Glos.; *Alcis repandata* L., a long series bred from wild larvae from Caern., including two ab. *conversaria* Hübn., and seven of the so-called Penmaenmawr form; also several greyish specimens and five ab. *nigricata* Fuchs, bred Cheshire; *Hepialus sylvina* L., four bright specimens, Scilly Isles; and 250 *Leucania unipuncta* Haw. showing considerable variation, bred Scilly Isles, F_1 generation, with three blown larvae.

Mr. A. D. A. Russwurm—*Maniola jurtina* L., one male ab. *radiata* Frohawk, an extreme form; *Aphantopus hyperantus* L., six specimens, three ab. *lanceolata* Shipp, one male with grey forewings, one female with left hindwing ab. *arete* Müll, one female ab. *crassipuncta* Burkhardt; *Argynnis paphia* L., one male with enlarged black spots on both forewings and hindwings; *Ochlodes venata* Br. & Grey, four females, dark form becoming more frequent in the New Forest, Hants.

Mr. J. H. K. Saunders—(1) Various forms of *Maniola jurtina* L. and *Coenonympha pamphilus* L. from Surrey and Sussex. (2) Aberrations of *Lysandra coridon* Poda from Shoreham, Kent: *fowleri* South; *marginata* Tutt + *latiora* B. & L.; *punctata-margino* B. & L., *ultra-flavescens* B. & L.; *nigrescens* B. & L. + *nubila* B. & L.; several with wing or wings with pale coloration; a bilateral gynandromorph; and a gynandromorph with female underside *nigrescens* B. & L. + *arcuata* Courv. with *fowleri* South border; and from Royston, Herts, ab. *semi-syngrapha* Tutt. (3) *Hadena compta* Schiff., bred ex Essex; *Calophasia lunula* Hufn., bred ex Sussex larvae; short series of *Tiliacea citrago* L., *Cirrhia gilvago* Schiff. and *C. ocellaris* Borkh.

Mr. K. W. Self—Rhopalocera from S.E. Kent and S. Dorset. Satyridae: *Aphantopus hyperantus* L., a series of ten males and two females taken during July and August 1957-58 including, amongst others, four ab. *lanceolata* Shipp, others with gradation of ocelli pertaining to ab. *arete* Müll., *caeca* Fuchs. and *obsoleta* Tutt. One female has the ocelli on the left wings partly hidden by straw-yellow patches and the other has a strongly defined encirclement of the ocelli. All undersides, S.E. Kent. *Maniola jurtina* L., a series of five males and one female. One male has minute apical spots approaching ab. *anommata* Verity, two are "bleached", and the remainder have contrasting ground coloration, S.E. Kent. Nymphalidae: *Argynnis selene* Schiff. and *A. euphrosyne* L., a series of six of each species showing heavy markings, suffusion, or enlarged lunules. One *A. selene* Schiff. male has hindwings with confluent spotting (marginal), S.E. Kent, June 1957-58. Lycaenidae: *Lysandra coridon* Poda, series of drab looking males of indeterminate ground colour with ab. *pallidula* Tutt for comparison; also ab. *caeruleo* Tutt + *glabrata* Tutt; ab. *ultraviridescens* B. & L. which appeared almost black on the wing; a male underside with white patches on hindwings and a female *nigrescens* B. & L. + *furvescens* B. & L. All S.E. Kent, August and September 1958, except the male ab. *ultraviridescens* aberration which was taken in August 1957. *Lysandra bellargus* Rott., two males and one female from S. Dorset, June 1957, and Kent, September 1955 and 1957 respectively, showing variation in colour. *Aricia agestis* Schiff., one male with reddish suffusion on right hindwing; a "bleached" male with cream, red, straw and orange coloured lunules, and a male and a female ab. *postico-obsoleta* Tutt, S. Dorset, June 1957; *Cupido minimus* Fuess., an albino male, being the fourth seen at the same spot in recent years; ab. *caeca* B. & L., male underside and two thinly scaled females, one greyish and the other, under magnification, seeming to show the right forewing patterned with small ringed spots, S. Dorset, June 1957.

Mr. B. Skinner—Lepidoptera taken in 1958. Two male *Apatura iris* L., taken as larvae from sallow, Chiddingfold, Surrey, 25th and 26th May; a *Catocala promissa* Schiff., taken at mercury vapour light in the New Forest, Hants, 4th August; two *Dicycla oo* L., taken at sugar, Mill Hill, Middx., 11th and 16th July; a series of *Cirrhia ocellaris* Borkh., bred from larvae found in the catkins of *Populus* *nigra* L., N. Surrey, 4th May; a series of *Carterocephalus palaemon* Pall., Peterborough, Northants.; a series of *Thymelicus acteon* Rott., Swanage, Dorset, 9th August; three *Arenostola morrisii* Dale, Folkestone, Kent, 5th July; and two *Aplasta ononaria* Fuess., Folkestone, 6th July.

Mr. F. G. Smith—(1) A series of 50 *Selenia bilunaria* Esp., 3rd and 4th generations bred from two larvae sent by Mrs. J. O. I. Spoczynska, summer 1956; *Abraxas grossulariata* L., ab. *varleyata* Porritt, bred from a larva from Bishops Stortford, Herts, in 1956; *Gonodontis bidentata* Clerck, a female with semi-transparent wings, third generation from a female taken in Bucks.; *Semiothisa notata* L., a series bred from a female taken in Bucks., 1956; and a series of each of the following: *Bena fagana* F., Bucks.; *Pseudoips prasinana* L. Bucks. and Herts.; *Euphyia cuculata* Hufn., Bucks.; *Laspeyria flexula* Schiff., Bucks.; *Plagodis dolabraria* L. Bucks.; *Semiothisa liturata* Clerck, Bucks.; *Pachycnemia hippocastanaria* Hübn., Bucks.; *Ectropis crepuscularia* Hübn. (melanic), Bucks.; *Rhodometra sacraria* L., Bucks and S. Devon. (2) Microlepidoptera collected in 1957 and 1958: *Aphomia sociella* L., Bucks.; *Crambus pinellus* L., Bucks.; *C. perlellus* Scop., Bucks.; *C. geniculeus* Haw., Bucks. and S. Devon; *C. tristellus* Schiff., Bucks.; *C. culmellus* L., Bucks.; *Phycita spissicella* F., Bucks.; *Hypochalcia ahenella* Hübn., Bucks.; *Schoenobius forficellus* Thunb., Hunts.; *Pempelia dilutella* Hübn., Bucks.; *Endotricha flammealis* L., Hunts.; *Pyralis glaucinalis* L., Hunts.; *P. costalis* F., Bucks.; *Rhodaria cespitalis* Schiff., Bucks. and S. Devon; *R. purpuralis* L., Bucks. and Hunts.; *Pyrausta nigrata* Scop., Bucks.; *Scoparia dubitalis* Hübn., Bucks.; *S. ambigualis* Treits., Bucks.; *S. basistrigalis* Knaggs, Hunts.; *Eudoria mercurea* Haw., Bucks.; *Cataclysta lemnata* L., Hunts.; *Nymphula nymphaeata* L., Hunts.; *Hapalia prunalis* Schiff., Bucks.; *H. ferrugalis* Hübn., Bucks. and S. Devon; *H. olivalis* Schiff., Bucks. and Herts.; *H. lutealis* Hübn., Bucks. and Herts.; *Perinephela* (*sambucalis* Schiff.), Bucks, and Hunts.; *Anthophila fabriciana* L., Bucks.; *Phalonia smeathmanniana* L., Bucks.; *Phtheocroa rugosana* Hübn., Bucks.; *Euxanthis hamana* L., Bucks.; *E. zoegana* L., Bucks.; *Epagoge* (*Capua*) *grotiana* F., Bucks.; *Archips oporana* L. (*podana* Scop.), Bucks.; *A. xylosteana* L., Bucks.; *A. rosana* L., Herts.; *Pandemis corylana* F., Bucks.; *P. heparana* Schiff., Bucks; *P. cerasana* Hübn. (*ribeana* Hübn.), Bucks; *Aleimma loeflingiana* L., Bucks.; *Tortrix viridana* L., Bucks.; *T. forskåleana* L., Bucks.; *Clepsis costana* F. Bucks.; *C. consimilis* Hübn., (*unifasciana* Dup.), Bucks.; *Lozotaenia forsterana* F., Bucks.; *Syndemis musculana* Hübn., Bucks.; *Eulia ministrana* L., Hants.; *Eana osseana* Scop., Bucks.; *Pseudargyrotoza conwagana* F., Bucks.; *Argyrotoza bergmanniana* L., Bucks.; *A. schalleriana* L., Bucks.; *Sparganothis pilleriana* Schiff. & Denis, Bucks.; *Acleris* (*Peronea*) *holmiana* L., Bucks.; *A. rhombana* Schiff. & Denis (*contaminana* Hübn.), Bucks.; *A. emargana* F. (*caudana* F.), Hunts.; *A. shepherdana* Steph., Bucks.; *A. aspersana* Hübn., Berks.; *A. cristana* Schiff. & Denis, Hunts.; *A. variegana* Schiff. & Denis, Bucks.; *A.*

sparsana Schiff. & Denis (*sponsana* F.), Bucks.; *Endothenia oblongana* Haw., Bucks.; *E. sellana* Hübn., Bucks.; *E. fuligana* Haw., Hunts.; *E. ericetana* Westw., Bucks.; *E. antiquana* Hübn., Hunts.; *Argyroploce salicella* L., Hunts.; *A. semifasciana* L., Hunts.; *A. hartmanniana* L., Hunts.; *A. betuletana* Haw., Bucks.; *A. pruinana* Hübn., Bucks.; *A. nubiferana* Haw., Bucks.; *A. striana* Schiff., Hunts.; *A. lacunana* Dup., Bucks.; *Notocelia uddmanniana* L., Bucks.; *N. trimaculana* Haw., Bucks.; *N. aquana* Hübn., Bucks.; *Eucosma tripunctana* F., Bucks.; *E. ratzeburgiana* Sax., Bucks.; *E. trimaculana* Don., Bucks.; *E. nigromaculana* Haw., Bucks.; *E. foenella* L., Bucks.; *E. penkleriana* F.R., Hunts.; *E. ramella* L., Bucks.; *E. bilunana* Haw., Hunts.; *E. nisella* Clerck, Bucks. and Hunts.; *E. semifuscana* Steph., Bucks.; *E. solandriana* L., Hunts.; *E. scopoliana* Haw., Bucks.; *E. expallidana* Haw., Bucks.; *E. tedella* Clerck, Bucks.; *Hemimene petiverella* L., Herts.; *H. plumbagana* Treits., Herts.; *Laspeyresia aurana* F., Herts.; *L. pomonella* L., Bucks.; *L. splendana* Hübn., Hants.; *L. perlepidana* Haw., Herts.; *L. compositella* F., Herts.; *L. internana* Guen., Herts.; *Anacampsis populella* Clerck, Hunts.; *Oecophora geoffrella* L., Bucks.; *Dasycera sulphurella* F., Herts.; *Diurnea fagella* F., Bucks.; *Carcina quercana* F., Bucks.; *Depressaria arenella* Schiff., Bucks.; *D. ciliella* Staint., Bucks.; *D. applana* F., Bucks.; *D. alstroemeriana* Clerck, Hunts.; *D. heracliana* L., Hunts.; *D. yeatiana* F., Bucks.; *Elachista argentella* Clerck, Bucks.; *Argyresthia brockeella* Hübn., Hunts.; *A. goedartella* L., Bucks.; *A. nitidella* F., Bucks.; *A. albistria* Haw., Hunts.; *Hyponomeuta padella* L., Bucks.; *H. evonymella* L., Bucks.; *Ethmia funerella* F., Hunts.; *Ypsolophus xylostellus* L., Herts.; *Y. scabrellus* L., Bucks.; *Y. parenthesellus* L., Bucks.; *Y. sequellus* Clerck, Bucks.; *Y. radiatellus* Don., Bucks.; *Plutella porrectella* L., Bucks.; *P. maculipennis* Curt., Bucks.; *Monopis rusticella* Hübn., Herts.; *Acedes semifulvella* Haw., Bucks.; *Lampronia oehlmanniella* Treits., Bucks.; *Adela viridella* Scop., Hants.; *Nemophora swammerdamella* L., Bucks.; *N. panzeriella* F., Bucks. (3) Diptera, SYRPHIDAE: *Cheilosia* (*Pyrophaena*) *graditarsa* (Forst.), S. Devon; *Platycheirus manicatus* (Meig.), Herts.; *P. immarginatus* (Zett.), Herts.; *P. scutatus* (Meig.), Herts.; *P. albimanus* (F.), Herts.; *P. clypeatus* (Meig.), Herts.; *P. timeo* (Harris) (*peltatus* (Meig.)), Herts.; *Melanostoma mellinum* (L.), Herts.; *M. scalare* (F.), Herts.; *Sphaerophoria scripta* (L.), Herts.; *Scaeva pyrastri* (L.), Herts. and Hants.; *Xanthogramma citrofasciatum* (Deg.), Bucks.; *X. pedissequum* (Harris), S. Devon; *Syrphidis* (*Syrphus*) *vitripennis* (Meig.), Herts.; *S. ribesii* (L.), Herts.; *Epistrophe elegans* (Harris), Herts.; *Metasyrphus latifasciatus* (Macqart), S. Devon; *M. consisto* (Harris) (*corollae* (F.)), Herts.; *M. luniger* (Meig.), Herts.; *Episyrphus balteatus* (Deg.), Herts.; *E. cinctellus* (Zett.), S. Devon; *Stenosyrphus compositarum* (Verral), Herts.; *Chrysotoxum bicinctum* (L.), Herts.; *C. verralli* Collin, Herts.; *Rhingia macrocephala* (Harris) (*campestris* Meig.), Herts.; *Neoascia podagrica* (F.), Herts.; *Chilomyia* (*Cheilosia*) *vernalis* (Fau.), Herts.; *Volucella pellucens* (L.), Bucks.; *Tubifera* (*Eristalis*) *tenax* (L.), Herts.; *T. arbustorum* (L.), Herts.; *T. pertinax* (Scop.), Herts.; *T. intricaria* (L.), Bucks.; *Myathropa florea* (L.), Herts.; *Helophilus parallelus* (Harris) (*trivittatus* F.), S. Devon; *H. pendulus* (L.), Hunts.; *Zelima* (*Xylota*) *segnis* (L.), Herts.; *Syritta pipiens* (L.), Herts.; *Syrphus* (*Leucozona*) *lucorum* (L.), Bucks. Conopidae: *Conops quadrifasciatus* L., Hunts.

Mr. R. E. STOCKLEY—Aberrations of British butterflies taken during the season 1957-8: *Pieris napi* L., a bilateral gynandromorph, left side male, right side female, Sanderstead, Surrey, May 1958; *Argynnis selene* Schiff., melanic form of the female, N. Sussex; *A. paphia* L., ab. *confluens* Spuler + *melaina* D'Aldin, a female from N. Sussex, 5.vii.58.

Mr. G. STOUGHTON-HARRIS—A gynandromorph *Gonepteryx rhamni* L., taken 10.viii.58, in a garden at Horsell, Surrey.

Mr. R. TAYLOR—The following Lepidoptera: *Amathes c-nigrum* L., an albino (Pl. II, fig. 5) and a typical example; *Heliothis armigera* Hübn.; *H. peltigera* Schiff. including an ab. *pallida* Cockerell.

Mr. H. G. TUNSTALL—Lepidoptera from Surrey, 1958: *Cucullia absinthii* L., bred from Box Hill and Epsom Downs, July; *Bomolocha crassalis* F. (*fontis* Thunb.), bred from Horsley, May; *Tholomiges turfosalis* Wocke, Chobham, July; the rare immigrant, *Diasemia ramburialis* Dup., taken at ordinary electric light in his house at Ewell, 10th October; *Trichoptilus paludum* Zell., Effingham, June, and Chobham, July; *Scardia boleti* F., bred in June and July, from fungus collected at the Chipstead field meeting on 5.x.57.

Mr. M. W. F. TWEEDIE—Moths from Mangaster, Shetland Mainland, taken or bred in 1956: *Amathes glareosa* Esp., five, all but one form *edda* Staud.; *Apamea furva* Schiff.; *Apamea exulis* Lef. The above three species taken at sugar in August. *Eupithecia satyrata* Hübn. form *curzoni* Gregson, a series bred from larvae found in August on flowers of Field Scabious. Moths taken at sugar at Rye Harbour, Sussex, in 1958: *Hama* (*Heliophobus*) *albicolon* Hübn., May, June and July; *Apamea oblonga* Haw., 9th August; *Hadena suasa* Schiff., May and June; *Eublemma ostrina* Hübn., 31st May; *Oxyptilus distans* Zell., 31st May.

Mr. F. T. VALLINS—See Mr. T. R. Eagles.

Mr. H. M. VIGNOLES—See Mr. P. H. LAWSON.

Mr. S. WAKELY—A number of Lepidoptera taken or bred during the current year, the most interesting being the following: *Agrotis denticulata* Haw. (*cinerea* Schiff. nec Hufn.), a varied series taken at Dungeness, Kent; *Hadena albimacula* Borkh., *H.w-latinum* Hufn., *Hama* (*Heliophobus*) *albicolon* Hübn., *Caradrina ambigua* Schiff. and *Eustrotia uncula* Clerck, all from Dungeness; *Euxoa nigricans* L., *Thalpophila matura* Hufn., *Cosmia affinis* L., *Scopula marginepunctata* Goeze, *Itame wauaria* L., *Cleora rhomboidaria* Schiff., a dark aberration, and *Zeuzera pyrina* L., all from Camberwell, S.E. London; *Tholomiges* *turfosalis* Wocke, Chobham, Surrey; *Colobochyla salicalis* Schiff., a bred series from Ham Street, Kent; *Xanthorhoë biriviata* Borkh., a bred series from moths taken in Buckinghamshire by Mr. R. Fairclough; *Semiothisa alternaria* Hübn., a series taken at dusk among Sea Buckthorn at Greatstone, Kent. A number of microlepidoptera were also exhibited, the most noteworthy being five bred specimens of *Hypercallia christiernana* L. from larvae found on Milkwort at Wrotham, Kent; four specimens of *Hyponomeuta irrorella* Hübn., from High Halstow, Kent; and one *Gracillaria azaleella* Brants, from Chiddingfold, Surrey. Other species shown included: *Palpita unionalis* Hübn., taken by Mr. R. M. Mere at Chiddingfold; *Gymnancyla canella* Hübn. bred Camber, Sussex; *Dioryctria fusca* Haw., *Euzophera neophanes* Durr. and *Crambus uliginosellus* Zell., taken at mercury vapour light, Camberwell, S.E. London; *Dioryctria hostilis* Steph., taken by Mr. E. J. Hare at Ham Street, Kent; *Nephopterix obductella* Zell., bred Halling, Kent; *N. similella* Zinck., taken by Dr. de Worms at Horsell, Surrey; *Lozotaeniodes (Eulia) formosana* Fröl., taken by E. Trundell at Shorne, Kent; *Ancylis inornatana* H.-S., bred, Ashdown Forest, Sussex; *Eucosma ratzeburgiana* Sax., Camberwell, at mercury vapour light; *Laspeyresia leplastriana* Curt., bred, Folkestone, Kent; *Metzneria littorella* Dougl., bred from seed stems of *Plantago coronopus* L. collected near Ventnor, I.o.W., by Mr. J. Lobb; *Exaeretia allisella* Staint., a single specimen bred from a larva found at Manchester by Mr. H. N. Michaelis; *Gracillaria semifascia* Haw., bred, Gurnard, I.o.W.; and *Monopis imella* Hübn., from Dungeness.

Mr. NORMAN A. WATKINS—British Lepidoptera taken during 1958: (1) *Agapetes galathea* L. from Somerset: ab. *valentini* Williams, 21 males and eight females selected from a series taken in Mr. A. Valentine's original locality over a period of ten consecutive days and two further separate days, spread over a total of 16 days altogether. Slightly over 2,000 fresh individuals were examined, of which 60 exhibited some *valentini* characteristics. Of these five males and two females can be described as very extreme, and three females extreme, the remainder intermediate forms of varying degree. Also shown were: one male teratological aberration with additional black scaling at the base of the left hindwing, and on the right forewing, surrounding a hole in the base of the wing. One male aberration with the normally black apical markings of the forewings light, giving a white rayed effect. Four male aberrations with normal wing pattern, but with the black scales replaced with bronze-brown. This form appears constantly but is very rare. During seven years observation no female of this form has been seen. One female dark form with pronounced black wing pattern, and absence of white marking to costa of forewing. Finally, a typical male for comparison. (2) *Melitaea aurinia* Rott., 16 males and 16 females selected from a series bred from wild Cumberland larvae, 1958. These differ noticeably from the form which occurs in the south and south-west of England. The wing pattern has considerably more black in it, very little yellow, and the red is brighter. Also a very pale male form from

Wilts., 1958. (3) *Coenonympha pamphilus* L., a male aberration with forewings with symmetrically rayed bleached patches, Somerset, July 1958. (4) *Maniola tithonus* L., two female aberrations: *post-triexcessa* Leeds and *pallidula* Leeds + *transformis* Leeds both from Wilts., August 1958. (5) *Maniola jurtina* L., three males and two females comprising ab. *pallida* Frohawk and *partimtransformis* Leeds. (6) *Lysandra bellargus* Rott., a male ab. *caeca* Courv. with very dark grey ground colour and a male ab. *obsoleta* Tutt with similar ground colour, Wilts., September 1958. (7) *Plebejus argus* L., a female ab. *flavescens* Tutt, Somerset, July 1958. (8) *Lysandra coridon* Poda from Wilts., male upperside aberrations, two *metallica* B. & L., four *marginata* Tutt, *semifowleri-margino* B. & L., *transformis* B. & L., *lavendula* B. & L. + *suffusa* Tutt and *plumbescens* Tutt + *suffusa Tutt.* Male underside aberrations, *grisea* Tutt, *pulla* B. & L., *albescens* Cockerell and an aberration with ground colour of unicolorous dark pinkish-brown, possibly referable to ab. *ochrea* B. & L. Female uppersides, two *syngrapha* Kefer., two *syngrapha-inframarginata* B. & L., *infrasemisyngrapha* B. & L., *radio* B. & L. + *transformis* B. & L., *metallica* B. & L., *glabrata* Tutt + *impar* Cockayne, *partimtransformis* B. & L. Female undersides, *antidisco-elongata* B. & L. + *postcaeca* B. & L., *caeca* Courv.

Mrs. N. D. WATSON—*Aphantopus hyperantus* L., including two ab. *lanceolata* Shipp, *crassipuncta* Burkhardt, and other spot aberrations showing a tendency towards *lanceolata*, with a typical example for comparison, from the New Forest, Hants; *Maniola tithonus* L., including ab. *excessa* Leeds, an albino male, a light female, and an asymmetrical female, also a typical example for comparison, from the New Forest; *Maniola jurtina* L., selected colour forms from the New Forest; *Melitaea aurinia* Rott., selected forms bred during 1957 and 1958 from Hod Hill, Dorset, larvae, including one resembling *M. athalia* Rott., a red female, and two smoky males; *Argynnis paphia* L. aberrations from the New Forest, a male with green markings on left hindwing, a male with white spot on left forewing and green patch on left hindwing, a male with rayed fore and hindwings, a male with black fringes, a male underside with black suffusion, a female with light patch on right hindwing, a female with light patches on all wings, a male underside with confluent black markings on left forewing, and a typical example for comparison; *Aglais urticae* L., a series of ab. *polaris* Staud., bred from Sandy Down larvae, 1956, and a series of colour forms also bred from Sandy Down larvae, 1958, including two with central spots divided; *Panaxia dominula* L., a series approaching *ab. juncta* Cockayne, with central spot elongated, series with pale hindwings including one with yellow patches, five *albomarginata* Kettlewell, from Salisbury, Wilts., three *fasciata* Spuler, Salisbury, four *crocea* Schultz, Bere Regis, and a series with dark suffused markings on hindwings approaching *brunnescens* Kettlewell, from Deal, Kent.

Mr. A. S. WHEELER—Four gynandromorphs of *Laothoe populi* L., bred from succeeding generations as illustrated in an accompanying family tree. One gynandromorph emerged in each of the years 1953, 1954, 1955, and 1956. In each year except the last, a male has been the carrier to the next generation. Owing to infertility in 1956 only three pupae were available for the following season and the only pairing in 1957 was between a female of the strain and a male Mr. Rumsey caught at Banstead, Surrey.

Mr. A. J. Wightman—see Mr. G. Haggett.

Dr. C. G. M. de Worms—(1) a selection of Lepidoptera taken in the British Isles during 1958 and the end of 1957. The following series: *Harpyia* (*Cerura*) *bifida* Brahm (*hermelina* Goeze), Ham Street, Kent; *Ptilophora plumigera* Schiff., E. Suffolk, November 1957; *Achlya flavicornis* L., Rannoch, Perthshire, showing some well-marked forms; *Polyploca ridens* F., Woking district, Surrey; *Dasychira fascelina* L., Woking district; *Amathes glareosa* Esp., Unst, Shetland, showing the melanic form *edda* Staud.; *Diarsia festiva* Schiff., Unst, showing form *thulei* Staud.; *Noctua* (*Triphaena*) *sobrina* Boisd., Aviemore, Inv.; *Antitype chi* L., Sheffield, Yorks.; *Brachionycha nubeculosa* Esp., Rannoch, a very dark form; *Apamea monoglypha* Hufn., melanic form from Dalwhinnie, Inv.; *Orthosia incerta* Hufn., variable forms from Rannoch; *Dicycla oo* L., Woking district; *Enargia paleacea* Esp., a specimen from Ham Street, and others from York and Sheffield; *Plusia interrogationis* L., Aviemore; *Xanthorhoë munitata* Hübn., Unst, ochreous form; *Philireme vetulata* Schiff., bred from the Oxford area; *Selenia tetralunaria* Hufn., Woking district; *Poecilopsis lapponaria* Boisd., Struan, Perthshire; *Apoda avellana* L., Woking district. (2) Uncommon species and aberrations of British Lepidoptera taken in the British Isles during 1958 and the end of 1957: *Celerio livornica* Esp., a specimen taken at Woking, 9.v.58; *Plebejus argus* L., a male from Folkestone, Kent, with unusually pale ground colour and border; *Chaonia* (*Drymonia*) *ruficornis* Hufn., two examples from the Woking area with a distinctly melanic ground colour; *Drymonia dodonaea* Schiff. (*trimacula* Esp.), a male from Woking with very darkly marked forewings; *Trichiura crataegi* L., a northern form male from Dalwhinnie, Inv.; *Lasiocampa trifolii* Schiff., an extreme cream coloured male with the cross lines absent, from Dungeness, Kent; *Agrotis denticulata* Haw. (*cinerea* Schiff. nec Hufn.), a black female from Wye, Kent; *Peridroma porphyrea* Schiff. an extreme f. *nigrocosta* Tutt from Woking; *Ammogrotis lucernea* L., two very dark examples from Unst; *Noctua* (*Triphaena*) *comes* Hübn., a very melanic form from Aviemore; *Apamea exulis* Lef., two dark examples of f. *assimilis* Doubl., from Dalwhinnie; *Orthosia gothica* L., a male example of f. *circumsignata* Hasebrk. from the Woking district; *O. munda* Schiff., two specimens with the twin spots absent, from the Woking area; *Plusia gamma* L., an example with entirely black forewings from Woking, 30.x.57; and *Semiothisa liturata* Clerck, an example of ab. *nigrofulvata* Collins, from the Marlow district, Bucks. (3) A selection of Lepidoptera taken in Finland during June 1958.

13th NOVEMBER 1958.

The PRESIDENT in the Chair.

EXHIBITS.

Mr. J. O. T. HOWARD—A short series of *Aporophyla australis* Boisd. (Lep., Noctuidae) consisting of pale specimens from Sandwich, Kent, dark well-marked specimens from S.W. Pembrokeshire, and a photograph of a specimen with dark, almost unicolorous forewings (ab. *ingenua* Freyer) taken at Sandwich in 1937 by the late John Bowes and illustrated in 1940, *Ent. Rec.*, **52**: 33. He read the following note: "*A. australis* Boisd. is usually regarded as a south coast insect, and the capture this year of specimens in Pembrokeshire therefore interested me considerably, especially as they differed so much from my Kentish series. As far as I can find out, a single specimen taken at Tenby in 1954 (1955, *Ent. Rec.*, **67**: 66) is the only other Welsh record, but it indicates that the moth is probably to be found in suitable places all along the south Wales coast. On the other side of England, Meyrick (1928, *A revised handbook of British Lepidoptera*, London: 116) gives Norfolk, and in 1934 there is a record of a lot of specimens being taken at the Haisbro' light vessel off Mundesley, Norfolk (*Entomologist*, **67**: 256). A particularly interesting record from my point of view is the capture by Dr. C. G. M. de Worms in 1950 of some dark specimens at Lowestoft, Suffolk (*Entomologist*, **83**: 138). He tells me that these are not unlike my Welsh insects. I imagine they are all along the East Anglian coast, but the only other record I have traced away from the south coast is in 1926 (*Entomologist*, **59**: 7), when some specimens were said to have been taken "20 years ago" at Earls Court Exhibition, of all places, but I hardly imagine they were locally bred".

Mr. E. E. J. TRUNDELL—Exhibited a case of Lepidoptera taken at Shorne near Rochester in Kent.

Dr. C. G. M. DE WORMS on behalf of Mr. G. YOUDEN—An example of *Antigastra catalaunalis* Dup. (Lep., Pyralidae) taken at Dover, Kent, 1.ix.58. Bierne, B.P. (1952, *British Pyralid and Plume Moths*, p. 127), only mentions four examples of this insect which includes one taken at Dover. The first to be taken in this country, by Mr. W. Boyd in 1867, occurred near Hertford.

COMMUNICATIONS.

Commenting on the *Aporophyla australis* Boisd. exhibited by Mr. Howard, Dr. DE WORMS said dark specimens occur not infrequently in the West Country, but he has never seen dark examples from the south coast from as far east as Swanage, Dorset.

Arising from a query regarding the foodplant of *Antigastra catalaunalis* Dup., Mr. S. N. A. Jacobs thought the larvae feed on Sesame on the Continent.

The editor read extracts from a letter received from Dr. B. P. Moore who is now in Australia.

A discussion took place on the Annual Exhibition, during which the general opinion seemed to be that the standard of exhibits was well up to that of previous years in spite of the poor season. However, disappointment was expressed over the number of exhibits in Orders other than Lepidoptera.

27th NOVEMBER 1958.

The PRESIDENT in the Chair.

The death was announced of Mr. R. Pritchard.

The following new members were declared elected: Dr. C. H. McClerry, Lt.-Col. H. C. Bridges, Miss Y. P. Gyselman, Messrs G. B. White, C. R. Haxby, R. C. Taylor, W. H. Blunt, L. E. Savage, J. H. C. Phillips, C. S. Barham, R. P. Knill-Jones, B. O. C. Gardiner and R. J. Penrose.

EXHIBITS.

Major F. L. JOHNSON—Two gynandromorphs of Papilionidae (Lep.) from Formosa. (1) A specimen of *Ornithoptera aeacus* Feld. s.sp. *kaguya* Nakahara & Esaki, mostly male, but with tornal area of hindwings female, also a normal male and female for comparison. (2) A specimen of *Papilio thaiwanus* Rothschild, a halved gynandromorph left side female, right side male, with a normal male and female for comparison.

Mr. N. WILDING—An example of *Chrysolina banksi* (F.) (Col., Chrysomelidae) exhibiting marked abnormality of the elytra, these were completely covered with very coarse reticulation which destroyed the usually shining surface, the pronotum was not affected.

Dr. C. G. M. DE WORMS—A photograph of a specimen of *Plusia biloba* Steph. (Lep., Plusiidae), which had been taken at light at Maidencombe, S. Devon, 1.x.58. He drew attention to the large silver mark on each forewing.

Mr. T. R. EAGLES—A copy of *Life* (24th November 1958, vol. **25**, No. 11) containing an article on Lepidoptera including a very fine picture of Dr. H. B. D. Kettlewell at work in Brazil.

Mr. B. GOATER—Specimens of *Hydraecia oculea* L., *H. crinanensis* Burr., *H. lucens* Frey. and *H. paludis* Tutt, with drawings of their external genitalia. He read the following note: In north Britain, where all four species occur, it is not possible to distinguish them without study of the genitalia. In the south, only *H. oculea* and *H. paludis* occur, and these southern *H. paludis* are larger, longer winged and khaki or pinkish-red, as compared with the generally smaller, rusty-red *H. oculea*. The southern race of *H. paludis* is chiefly maritime, though it occurs inland around London; *H. oculea* is more generally distributed and especially common in heathy places. All species may be found from the end of July to early in September, though I suspect their peaks of emergence may be at different times.

Mr. A. H. KENNARD—Pyrales and Microlepidoptera caught in Iceland during July and August 1958 by himself and Mr. David Hardy: *Laodamia fusca* Haw., Frodaheidi; *Crambus pascuellus* L., Allafoss;

Eana osseana Scop. abundant everywhere on Snaefellsnes, also Reykir (N.W.), Siglusfjörd (N) and Allafoss; *Phalonia dubitana* Hübn. s.sp. *islandicana* Wolff, Allafoss, *Polychrosis dubitana* Steph. (*littoralis* Westw.), Allafoss; *Subeidophasia senitella* Zell., Frodaheidi; *Plutella maculipennis* Curt., abundant Snaefellsnes; *Scrobipalpa plantaginella* Stn., Allafos; *Glyphipterix fischeriella* Zell., male, Reykjavik, a species apparently new to Iceland.

COMMUNICATIONS.

The Librarian reported the donation by Dr. G. S. Robertson of the six volumes of the illustrated large paper edition of Fowler's *Coleoptera of the British Isles.*

Lantern slides were shown by several members.

11th DECEMBER 1958.

The PRESIDENT in the Chair.

The death was announced of Mr. J. C. B. Craske.

COMMUNICATIONS.

Dr. K. **MELLANBY** read a paper on "Some effects of climatic conditions on insects in the laboratory and in the field", which was illustrated by the lantern and followed by many questions and an interesting discussion.

8th JANUARY 1959.

The PRESIDENT in the Chair.

The death was announced of Mr. W. Rait-Smith, one of our Trustees.

Messrs. M. L. Luff and I. C. C. Matheson were declared elected members.

EXHIBITS.

Mr. F. D. **BUCK**—A series of *Henoticus californicus* (Mann.) (*germanicus* Reitt.) (Col., Cryptophagidae) bred from Spanish raisins by Mr. R. M. Mere. Originally described within the genus *Cryptophagus* by Mannerheim (1843, *Bull. Moscou*, **16**: 256) *californicus* was transferred to *Henoticus* by Casey (1900, *Journ. N. York ent. Soc.*, **8**: 100-1). In Europe this insect was, for a long time, known as *H. germanicus* and according to Schenkling (1923, *in Junk, Col. Cat.*, **76**: 21) had been recorded from Germany, France and London only. Apart from a short series in the Power collection there is only one example in the General Collection in the British Museum (Nat. Hist.) from Sonoma Co., California, U.S.A. The seven examples in the Power Collection are: three taken in jam, London, 1920; three taken in a paper bag, Liverpool, November 1953, K. W. Ford; and one taken in a wine cork, London, 11.xi.04, W. H. Moraunt (this collector's name is rather illegible on the data label, but after obtaining several opinions, this is what it is assumed to be). In addition to these records Donisthorpe (1931, *An Annotated List of the Additions to the British Coleopterous Fauna*, London, p. 59) gives: a window, Newbury Station, 1906, Donisthorpe; London warehouse, 1912, Blenkarn; in tin containing jam jar, etc., Plymouth, 1920, Keys. O'Mahony (1950, *Ent. mon. Mag* **86**: 72) records four examples in imported dried fruit in Dublin, Ireland.

COMMUNICATIONS.

Dr. C. G. M. de Worms drew attention to the discovery by Mr. Wally of the British Museum (Nat. Hist.) of a moth which he thought almost certainly to be *Oidaematophorus cinerariae* Mill (Pterophoridae) which had occurred in light traps and had not previously been recorded in this country. The species is very close to *O. osteodactylus* Zell. with which it had been found to be mixed in collections, occurring in both Kent and Sussex from 1887 onwards. In the south of France the species feeds on *Senecio cineraria* D.C., a plant which is not indigenous to Great Britain.

Referring to Mr. Buck's exhibit, Mr. S. N. A. Jacobs said that in the docks in London he had found *Henoticus californicus* (Mann.) occurring in the corrugated cardboard bottoms of cases of American bottled orange juice which had been saturated with the fruit juice from broken bottles. The President queried whether the beetles feed in these situations or whether they were only attracted by the juice. He cited the case of the Platypodinae which, attracted by the smell of the contents bored into rum casks. Mr. Jacobs said the beetles were undoubtedly attracted by the smell of the juice, but Mr. Buck pointed out that this was not a parallel since the insects did feed on various kinds of stored foods.

Miss W. M. A. Brooke said that in the botanical field she had discovered that many institutions and Museums abroad had poor collections of British plants in their herbaria and she was making arrangements as far as she could to supply specimens. She suggested that the situation may be the same in Entomology.

Mr. R. F. Haynes commented on the profusion of holly berries this year and the President said he had found berries in general more profuse this winter.

Dr. C. G. M. de Worms said that the Waxwing had turned up in the Eastern Counties and had been seen in the environs of London—usually an indication of a good crop of berries.

Lantern slides were shown by Miss W. M. A. Brooke, Dr. C. G. M. de Worms, Messrs. Henderson, Classey and Haynes.

22nd JANUARY 1959.

87th ANNUAL MEETING

(With which was combined the Ordinary Meeting).

The President, Dr. N. E. Hickin, F.R.E.S., in the Chair.

Mr. J. L. Henderson, the Hon. Treasurer, presented his report and accounts, and moved their adoption. They were seconded by Mr. E. W. Classey and carried.

The Council's Report for 1958 was read by Mr. B. Goater, the Hon. Secretary, who moved its adoption. Mr. W. E. Minnion seconded and it also was carried.

The President announced the following Officers and Council for 1959:—*President*: F. T. Vallins, A.C.I.I., F.R.E.S. *Vice-Presidents*: N E. Hickin, B.Sc., Ph.D., F.R.E.S.; R. M. Mere, F.R.E.S. *Treasurer*: J. L. Henderson. *Secretary*: B. Goater, B.Sc., F.R.E.S. *Editor*: F. D. Buck, A.M.I.Ptg.M., F.R.E.S. *Curator*: A. E. Gardner, F.R.E.S. *Librarian*: T. R. Eagles. *Lanternist*: L. Christie. *Ordinary Members of Council*: G. J. Ashby, F.R.E.S., J. D. Bradley, F.R.E.S., R. G. Chatelain, R. Eldon Ellison, F.R.E.S., J. O. T. Howard, M.A., D. Leston, F.Z.S., F.R.E.S., J. L. Messenger, B.A., M. G. Morris, F.R.E.S., W. H. T. Tams, F.R.E.S., and M. W. F. Tweedie, M.A., C.M.Z.S.

The President read the following motion placed on the Agenda by Mr. G. S. Kloet: "It is felt that the Transactions devote far too much space to the recording of endless lists of exhibits of uninteresting species, and to the recording of all species captured on excursions. It is suggested that such reports should be kept by the Secretary or Editor for consultation by anyone wishing to see them, and the space saved in the Transactions could be used for increased production of articles on Taxonomy, etc.—which are bringing such credit to the Society".

In the absence of Mr. Kloet and the failure of the motion to find either a proposer or a seconder the President was unable to put the motion to a vote. However a number of members expressed their views on the matter, all against the proposal. The President asked the meeting if there was anyone holding views coinciding with those of Mr. Kloet and, failing to get any response, moved on to next business.

Col. W. A. C. Carter and Mr. J. E. Knight were declared elected members.

EXHIBITS.

Mr. T. R. Eagles, on behalf of Mr. W. H. Spreadbury—(1) Goose Barnacles, *Lepas anatifera* L. (Crustacea). (2) A Mermaid's Purse, an empty egg case of the Spotted Ray, *Raja montagui* Fowler. (3) Calcareous tubes of the worm *Spirorbis borealis* Daud. on Bladder Wrack, *Fucus vesiculosus* L. All from Seaford, Sussex.

COMMUNICATIONS.

The President read his Address and, vacating the Chair, inducted the new President, Mr. F. T. Vallins.

Mr. **Vallins** thanked the meeting for the honour they had done him and moved a vote of thanks to the retiring President combined with a request for permission to publish his Address.

In his reply Dr. **Hickin** gave his permission for publication.

A vote of thanks was moved to the Vice-Presidents, Officers and Council by Mr. S. N. A. **Jacobs** and seconded by Mr. R. F. **Haynes**. Mr. A. E. **Gardner** replied.

The Hon. **Treasurer** moved a vote of thanks to the Auditors which was seconded by Mr. H. G. **Tunstall** and to which Mr. R. M. **Mere** replied.

THE PRESIDENT'S ADDRESS.

Read by N. E. **Hickin**, Ph.D., B.Sc., F.R.G.S.

22nd January 1957.

At the very beginning of my address to you this evening, I must say that I have enjoyed, very much, the privilege of being your President this last year. Of course, I have known for many years of the very high regard in which our Society stands in the thoughts of Entomologists not only in London, but throughout the British Isles, and, indeed, much further afield.

I have been struck by two main facts during this last year concerning our Society.

Firstly, its virility. Our meetings do not consist merely of the presentation of a paper, followed by some discussion, but there is a frank exchange of information and views concerning Entomology and Natural History and, indeed, the discussion on interesting captures before and during the meeting, and the examination of our collections, the use of our Library, all show the virile strength of the South London.

Next, I have been struck by the devotion to the Society of the Honorary Officers and indeed the task of President is made so pleasant and simple because of the painstaking care taken by the Secretary, Treasurer, Editor, Librarian, Meetings Secretary, Curator, Lanternist, etc., and I am personally, and I am sure all of you are, very grateful to all these gentlemen for all the work they have so successfully carried out this last year.

But there is a sad side to the running of our Society and I refer to the loss by the death of a number of its members, and I shall refer briefly to these gentlemen.

Mr. H. A. Leeds was an Entomologist with a national reputation. With the late Mr. P. M. Bright he was co-author of the monograph on the British Aberrations of the Chalkhill Blue, and with the late Mr. L. W. Newman he was the co-author of the textbook of British Butterflies and Moths which appeared as long ago as 1913, and his membership of the South London dates back to 1914. He was 85 years of age at his death.

Canon T. G. Edwards—His memory will be perpetuated as a well-loved figure at many of our meetings and field meetings. His name will also be perpetuated in our records as the donor of many books to our Library.

Mr. J. W. Saunt resided in the Isle of Wight, and he had a very fine collection of Saw-flies. Although of a retiring disposition he was of great help to many entomologists. He joined us in 1945.

Mr. J. P. Robson was a resident of Barnard Castle, County Durham, and perhaps is best known as a very successful breeder of insects. He had been a member for six years.

Mr. W. Rait-Smith had been a member since 1922 and he was a devoted Trustee of our Society. His great interest was the micro-lepidoptera. He has made a generous bequest to our Society.

Mr. J. C. B. Craske had been a member since 1934, and was a lepidopterist.

Mr. R. Pritchard was the very enthusiastic and competent Secretary of the Lancashire and Cheshire Entomological Society and he died the day following their very successful Exhibition this year. He had been a member for ten years.

We have already stood in reverent memory of these gentlemen.

Now, I turn to the Entomological section of my address. For some months when contemplating the writing of this address I vacillated between writing on my leisure time entomological love, the Caddis flies, or on some aspect of my professional work, wood-boring insects. In the end I decided to address you on the beetle family ANOBIIDAE, mainly because the Joy collection of beetles which is truly a great possession of our Society, has, I thought, an extremely good selection of these insects. But what we seem to lack concerning many of these insects are illustrations, and to remedy that I have made a collection of scraper-board drawings, which I hope you will find of interest.

An interesting point about the ANOBIIDAE is that the total number of insects known to Linnaeus in 1758 was 1,929 but of the 28 species in the British ANOBIIDAE Linnaeus knew four of them, but neither the Death Watch Beetle (*Xestobium rufovillosum*) nor the Furniture Beetle (*Anobium punctatum*) was included in these four.

I thought I would like to present to you a picture of the ANOBIIDAE as a whole—a mixture of insects of no economic importance but of great interest, with some that are of profound economic significance.

THE BRITISH ANOBIIDAE.

The family ANOBIIDAE is contained within the superfamily BOSTRICHOIDEA together with the families PTINIDAE, BOSTRICHIDAE and LYCTIDAE. This approximates to the suborder TEREDILIA. The characteristics of the superfamily are as follows: The integument of the adult is generally hard and brittle (but may be very soft—*Ernobius mollis*

(L.)) and the pronotum is developed, often shield-like and often hood-like, sometimes with lateral projections.

Six cryptonephric malpighian tubules are present, their ends attached to one side of the gut, this character being shared with the DERMESTOIDEA, DERODONTIDAE, NOSODENDRIDAE, DERMESTIDAE and THORICTIDAE.

The larvae of the BOSTRICHOIDEA are soft and hook-shaped, lacking sclerotised dorsal plates and lacking setae, and many are woodborers, spending the whole of the larval life within the wood. None of the PTINIDAE, however, bores into wood except that a few species will hollow out a pupal chamber in wood adjacent to material in which the larvae have been feeding.

The ANOBIIDAE are distinguished from the other families of the super-family by having the prosternal intercoxal process not received into the mesosternum and the antennal sockets are more or less under the sides of the frons and separated by more than the length of segment one. The hind coxae are contiguous. Altogether, seven of the recognised sub-families containing fifteen genera are present in the British fauna, with a total of 27 species.

ANOBIIDAE.

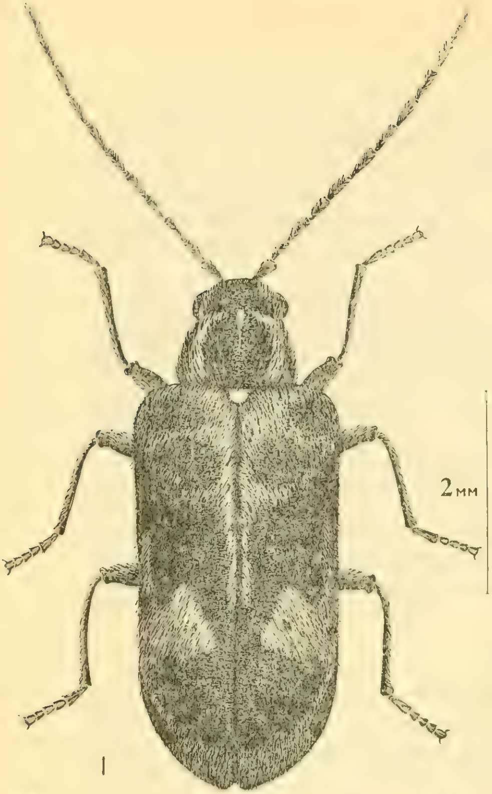
In the following description of species I have followed the order adopted by Kloet and Hinks although from time to time criticisms will be made.

HEDOBIINAE.

HEDOBIA.

The first sub-family the HEDOBIINAE contains only Latreille's genus *Hedobia* (1829) in which the sole British representative is the Linnaean species *imperialis* (1767). This handsome and characteristic insect was classified by Joy in the PTINIDAE and, having worked for a number of years with this family I can understand why it could be placed close to the genus *Ptinus*. I believe its correct place is in the ANOBIIDAE but in such a position that it becomes adjacent to the Ptinidae and not as in Kloet and Hincks arrangement which show it as next to *Bostrichus capucinus* (L.) in the BOSTRICHIDAE.

H. imperialis (L.) has a background colour of dark pitchy-red and where rubbed may be mahogany but a distinctive pattern of scale-like pubescence give the insect its characteristic appearance (fig 1). The scutellum is almost white. The pronotum is much less broad than the rest of the body and is divided into two distinct areas each with lateral scale-like pubescence. The antennae are almost as long as the elytra and the last three segments are not larger than the others. Length of insect 3·5-5·5 mm. It is local in England and Ireland and Joy gives it as "in old hedges". I have found one only about ten years ago in a piece of Walnut furniture of Italian origin.



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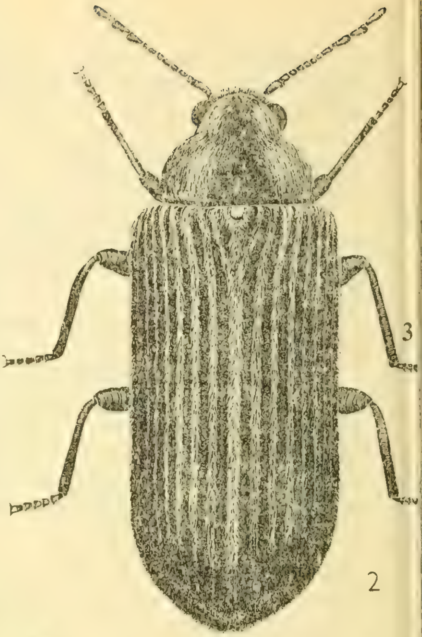

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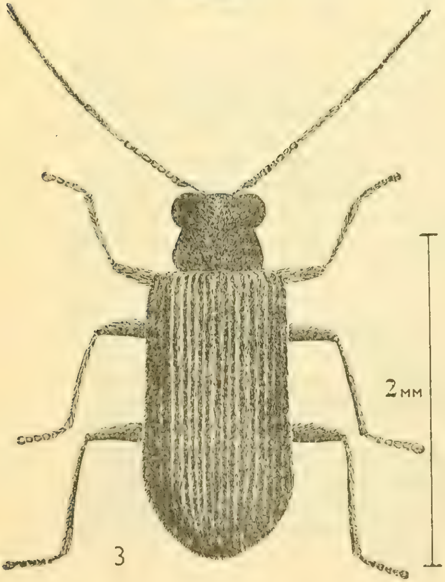

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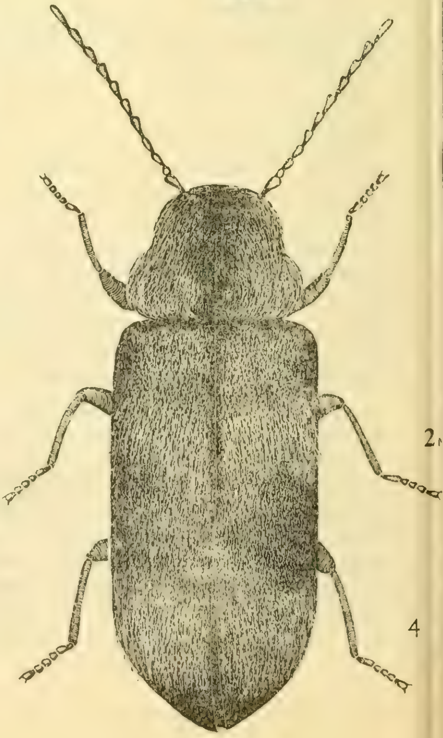

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DRYOPHILINAE.

The DRYOPHILINAE contains three species divided between *Grynobius* Thomson (1859), one species, and *Dryophilus* Chevrolat (1832), two species, and share the character that the pronotum is not as wide as the elytra, but is much wider than that of *Hedobia.* Again the pronotum is divided into two areas, the oval area being much narrower than the aboral. In *Grynobius* these areas are very distinct but in *Dryophilus* they are much less so.

GRYNOBIUS.

G. excavatus Kugelann (1792) (fig. 2) has short antennae only a little longer than the pronotum and the last three segments are longer and more robust than segments 2 to 8. The elytra are covered with a series of longitudinal ridges—7 or 8 on each elytra are usually visible from the top surface. These ridges alternate with lines of short fine pubescence. It varies from a dark pitchy colour to reddish and is from 4 to 5·5 mm. in length and is considered to be common in old wood, but I have never found it indoors. There is a rare variety described by Seidlitz (1889) named *eichoffi* in which the ridges on the elytra are more distinct and shining, and the third segment of the antennae is distinctly longer than the second and twice as long as the fourth. It is interesting to note that Strand considers that it is probable that the genus *Grynobius* consists only of a single species *planus* F. and that *excavatus* is a synonym. The same author states that this species is frequently a pest in houses in Norway in timber of birch, alder and willow. With regard to *Grynobius kiesenwetteri* Edwards (1921) Buck has shown that this is, indeed, a large female of *excavatus* with some varietal characters that often accompany excessive size. It is 6-8 mm. in length and is distinguished by the pronotum being more sharply contracted at the front and the alternate ridges on the elytra being more pronounced than the others along their whole length.

DRYOPHILUS.

Both species of *Dryophilus* are characterised by the antennae having their bases fairly close together—they are separated by less than the length of the first antennal segment. The eyes are prominent when viewed from above and the antennae are long—about as long as the elytra. The last three segments of the antennae are very long. The species *pusillus* Gyllenhal (1808) (fig. 3) is a small beetle 1·3-2·2 mm. in length and the scutellum is small and without pubescence. Elytra are reddish in the male, black in the female, the head and pronotum being black in each case. It is found locally in England and Ireland, and is collected by beating fir trees.

Figure 1. *Hedobia imperialis* (Linnaeus).
Figure 2. *Grynobius excavatus* (Kugelann).
Figure 3. *Dryophilus pusillus* (Gyllenhal).
Figure 4. *Ochina ptinoides* (Marsham).

D. anobioides Chevrolat (1832) is a larger insect, being from 2·5-4 mm. in length and is very rare, being found in old stumps of broom and bramble in Southern England. The scutellum has white scale-like pubescence and segments 4-8 of the antennae are transverse whilst those of *pusillus* are elongate to quadrate.

ERNOBIINAE.

The sub-family ERNOBIINAE consists of three genera *Ochina* Stephens (1830) with one species *ptinoides* Marsham (1802), *Xestobium* Motschulsky (1845) with one species *rufovillosum* Degeer (1774) and *Ernobius* Thomson (1859). Kloet and Hincks list four species as British, but the occurrence of varieties or subspecies make this genus rather more difficult to identify than others in the ANOBIIDAE. In Joy's work *Ernobius* is found in the XYLETINIDAE but seems to be in its rightful place in Kloet and Hincks list following *Dryophilus*.

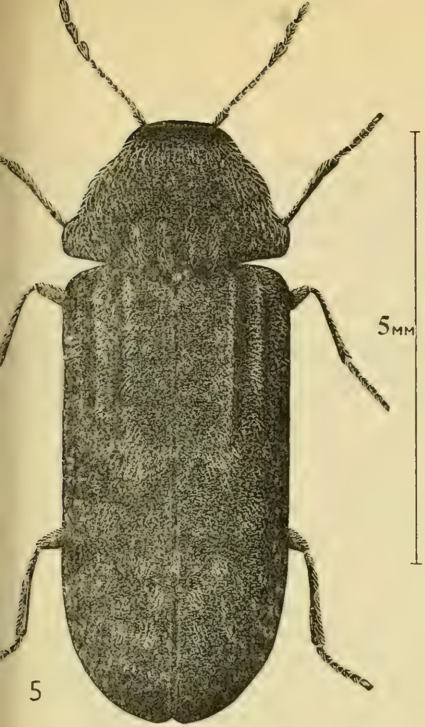
OCHINA.

Ochina ptinoides Marsham (1802). This is the *hederae* of Mueller (1821) (fig. 4). This is a fairly small insect 2·5-3·5 mm. in length. The pronotum is slightly less in width than the elytra, and as seen from the top is rounded at the front with two lateral projections behind. The elytra are elongate and somewhat shining with two transverse bands of white pubescence. One band is situated near the middle legs and the second band behind the third legs. It is local in England, Scotland and Ireland and found around old ivy, the larvae boring in its stems. I found it flying at dusk around an ivy-covered window in August in Northumberland and indeed it flew into the room.

XESTOBIUM.

Xestobium rufovillosum (figs. 5 and 6) is the *tesselatum* of de Villers (1789) found in many works. It is the largest species in the ANOBIIDAE being from 5 to 7 mm. in length. The antennae are short, only as long as the pronotum. The last three segments of the antennae are enlarged. The pronotum has three regions when seen from above and shown by two constrictions. The pronotum is just as wide as the elytra. Two prominent longitudinal ridges are situated on the elytra and extend backwards usually nearly as far as the hind legs. The colour is somewhat variable, pitchy-black to reddish with patches of yellow scale-like pubescence varying also in intensity. Much of the pubescence is rubbed off a few days after emergence. It is common in England, but only known from two or three localities in Scotland and Ireland.

Figure 5. *Xestobium rufovillosum* (Degeer).
Figure 6. *Xestobium rufovillosum* Degeer), lateral view, legs not shown.
Figure 7. *Ernobius mollis* (Linnaeus).
Figure 8. *Ernobius mollis* (Linnaeus), lateral view.
Figure 9. *Stegobium paniceum* (Linnaeus).
Figure 10. *Stegobium paniceum* (Linnaeus), lateral view.



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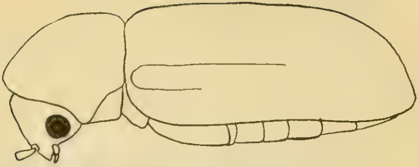

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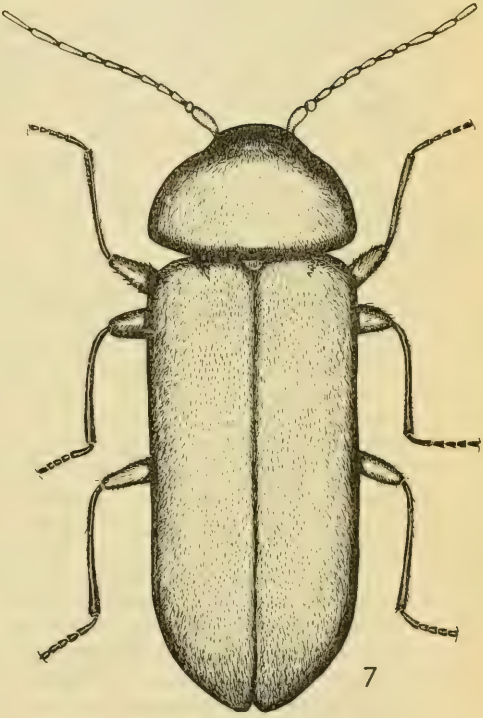

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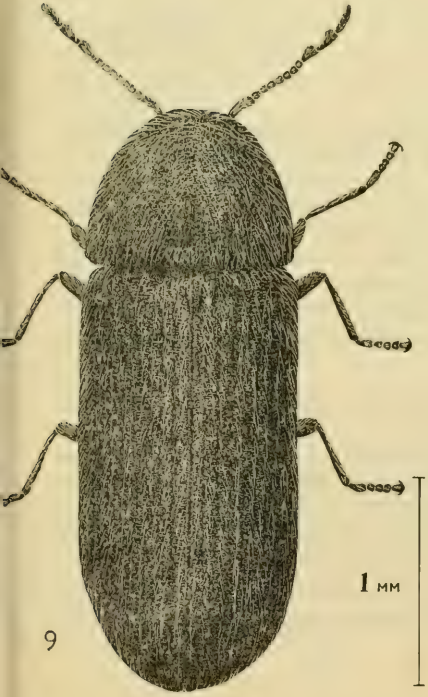

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The larvae are found boring into various hardwood timbers where fungal decay has already commenced. From such situations attack may occur in adjoining softwoods. Pollard Willow trees are very often attacked, but the species assumes great economic importance when oak timbers usually of large dimensions and because of this, containing some unsound wood, have been used in the construction of buildings—many of these historic to-day.

X. rufovillosum cannot fly and could not be expected to walk far, and therefore it is virtually certain that, when found indoors, it has been infecting timber since the timber was originally hewn, and used for constructional purposes. There has been much laboratory work carried out on this species and its biology is fairly well known. A point of special interest, however, is the rapid crawling habit of the young newly-hatched larvae when they are seeking entry into the wood. This habit is soon lost when tunnelling commences.

ERNOBIUS.

The genus *Ernobius* Thomson (1859) (figs. 7 and 8) has given rise to a number of difficulties largely due to the occurrence of well-established varieties mainly in the proportions of the different segments of the antennae. The pronotum is as wide as the elytra and the tibiae and tarsi are long and slender. The eyes are large. Pubescence on elytra is evenly distributed and there is fine punctuation. There are four British species which are quite distinct.

E. nigrinus Sturm (1837). The body of this species is black and the tarsi are reddish. The antennae have the third segment distinctly longer than the second, the fifth much longer than the sixth and the eighth distinctly transverse. It is rare.

E. oblitus Sharp (1916). Antennae shorter, segments less elongate, segment 7 slightly longer than 6 and 8. Front tibia straight in both sexes. Length 2·5-3 mm. Very rare, found only in Hants.

E. mollis Linnaeus (1758) (figs. 7 and 8). Antennae longer and segments more elongate. Segment 7 longer than 6 and 8. Front tibia turned slightly outwards more so in male than female. Length 3·5-4·5 mm. The elytra are very soft lacking the usual horny texture. This species is very common, found throughout the British Isles in houses where strips of bark have been left on softwood joists and other timbers.

There are two varieties as follows:

- v. *reversus* Sharp (1916) in which the lobes of the aedeagus are in the reverse order.
- v. *mulsantianus* Sharp (1916) segment 7 of the antenna is as long as 6 and 8 and the front tibia of the male is bent inwards throughout, in female it is straight. The pronotum is more shining and less closely punctured. Length 4·5 mm. It is very local in distribution found only in Hants. and Berks.

E. angusticollis Ratzeburg (1847) v. *parvicollis* Mulsant (1863). This species is represented in the British Isles by the variety *parvicollis*. The sides of the pronotum are strongly angled. Tarsi shorter than other species. Black in colour with elytra and tarsi reddish segments 6-8 of antennae slightly elongate and of equal length. Length 3-4 mm. It is very rare and found in Surrey.

ANOBIINAE.

The sub-family ANOBIINAE consists of four genera. *Stegobium* Motschulsky (1860) (the *Sitodrepa* of Thomson (1863) of many works). The genus *Dendrobium* Mulsant, was dropped by Kloet and Hincks, and the single species *denticolle* Creutzer (1796) included in *Anobium*. I have reverted to the use of the genus *Dendrobium*, *Gastrallus* du Val and *Anobium* Fabricius.

STEGOBIUM.

There is a single species *paniceum* Linnaeus (1758) (figs 9 and 10); *paniceum* is a small beetle only 2-3·5 mm. in length and reddish in colour. The pronotum is as wide as the elytra and completely masks the head when seen from above and all margins are convex. The puncturation is confused, but long pubescence occurs in longitudinal rows on elytra. Joy omits England from the distribution, but it is to-day a very common pest in certain stored foods such as dried soup powders and various packeted farinaceous foods.

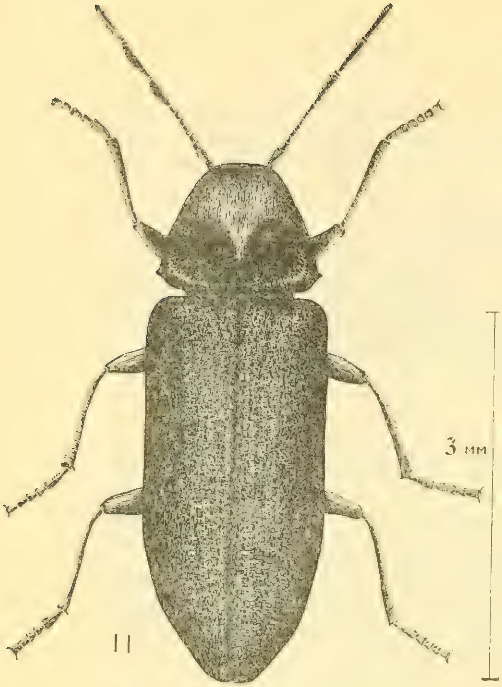
GASTRALLUS.

Gastrallus de Val (1860) has a single British species *laevigatus* Olivier (1790).

ANOBIUM.

The genus *Anobium* Fabricius (1775) contains two British species—*punctatum* Degeer (1774) and *fulvicorne* Sturm (1837). *A. striatum* Olivier (1790) nec Fabricius (1787) and *domesticum* (Geoffroy in Fourcroy 1785) are the chief synonyms of *punctatum* and have been widely used.

A. punctatum (figs 11 and 12) is variable in size from 2·5 mm-4·5 mm. It is variable in colour in addition and may vary from a light reddish yellow through dark chocolate brown to a pitchy red. The legs are usually reddish brown and the last three joints of the antenna are said to be longer in the male than in the female. The pronotum is approximately as wide as the elytra (if the small tubercles at the posterior angles are taken into account). The disc is raised into a crest and there are two foveae. Pronotum and elytra are covered with a very fine pubescence and there are longitudinal rows of fine sculpture on the elytra. Since about 1945 this species has become exceedingly common as a pest of wood indoors where it is found wherever wood is employed—Furniture, musical instruments, tools and implements, and on a very much greater scale in the joinery timbers and flooring and structural timbers of buildings. Formerly it was stated that only well-seasoned timber was attacked but it is now evident that timbers require a "maturation" time depending on the timber species. Willow, Alder



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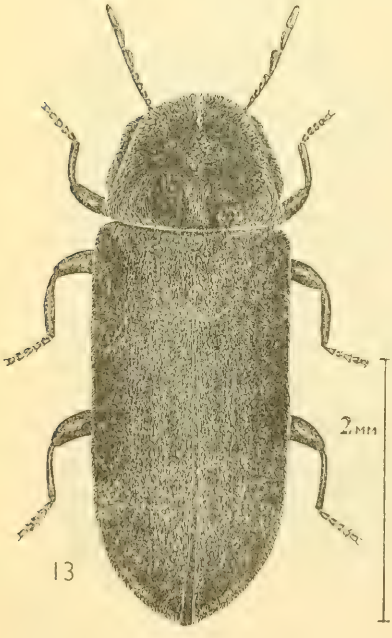

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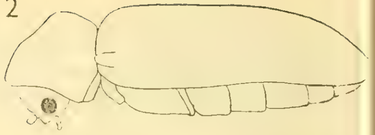

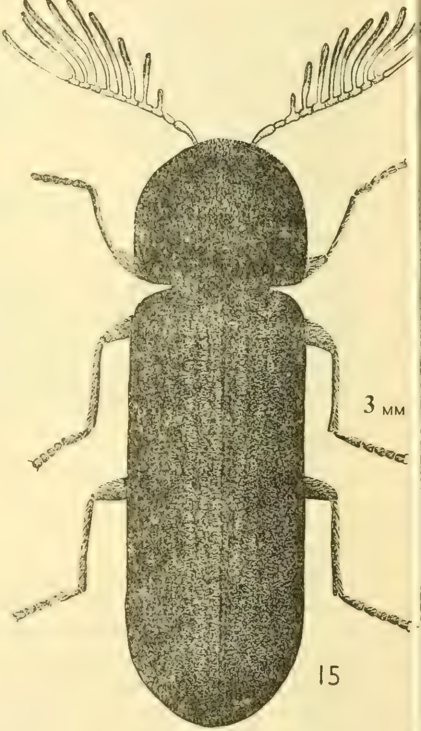

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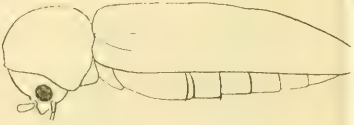

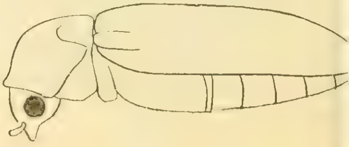

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and Birch can be infested soon after the timber is dry, but softwoods require to mature about twenty years and Oak about sixty before the flight holes of *A. punctatum* are observed.

Although only apparently sound wood is attacked suggestions have been made that initial infestations are facilitated by the presence of superficially-growing "soft-rot" fungi. The great prevalence of *A. punctatum* in the more humid climate of Ireland and the usually first appearance of this species as a pest in the less well-ventilated areas of a house (the cupboard under the stairs being a case in point) seem to support this view.

A. punctatum, however, is to-day a pest of major economic importance, the significance of which has probably not been adequately recognised by those responsible. It is the estimate of the writer that *A. punctatum* occurs in something between thirty-five and seventy-five per cent. of all properties in Great Britain.

A. fulvicorne Sturm. Up to $\frac{1}{6}''$ in length and dull black in colour but the antennae, tibiae and tarsi are reddish. Antennae rather shorter than in *punctatum* and the elytra are rather less rounded at the apex. The tarsi are more distinctly thickened towards the apex. Cox considers this species to be rather common.

DENDROBIUM.

The genus *Dendrobium* contains one species *denticolle* Creutzer (1796) (figs. 13 and 14). In length it varies from 4·5-5·5 mm. and is pitchy in colour and covered with short greyish pubescence, but in the hinder angles of the pronotum the pubescence is a little longer and yellowish. There are two foveae at the hind part of the pronotum and at the sides there are narrower wing-like extensions. The antennae are short, scarcely as long as the pronotum, and the last three segments are much longer than the remainder. This insect is very rare, found only in Southern England as far north as Worcester, and is collected from old oaks and hawthorn.

PTILININAE.

The PTILININAE is made up of one genus *Ptilinus* Mueller (1764) (figs. 15 and 16) containing two British species. These are elongate cylindrical beetles with the pronotum almost globular and usually darker in colour than the more reddish elytra. The latter are decorated with punctures arranged in more or less irregular rows. The antennae of the male are strongly pectinate whilst those of the female are serrate.

Figure 11. *Anobium punctatum* (Degeer).
Figure 12. *Anobium punctatum* (Degeer), lateral view.
Figure 13. *Dendrobium denticolle* (Creutzer).
Figure 14. *Drendrobium denticolle* (Creutzer), lateral view.
Figure 15. *Ptilinus pectinicornis* (Linnaeus).
Figure 16. *Ptilinus pectinicornis* (Linnaeus), lateral view.

Ptilinus pectinicornis. Varies from 3·3 mm. to 5·5 mm. but during my fifteen years acquaintance with these beetles I have never seen them as small as some specimens in the Joy collection. The large pectinate antennae of the male are quite extraordinary. The larvae infest dry wood of the following species: Beech, Maple, Scyamore, Elm, Elder and Ash and often co-infest timber with *Anobium punctatum*. *Ptilinus pectinicornis* will pair inside the wood.

Ptilinus fuscus Geoffroy in Fourcroy, 1785, was placed in the British list in 1931 by Donisthorpe on the strength of the record by Taylor in 1910 of specimens bred out of the wooden base of a pair of scales at Sandown, I. of W., under the name of *P. costatus* Gyll.

XYLETININAE.

The XYLETININAE consists of two genera *Xyletinus* Latreille (1810) and *Lasioderma* Stephens (1835) but is not equivalent to the older family XYLETINIDAE which, in addition, contained the genera *Eledona*, *Haplocnemus* and *Ochina*.

Xyletinus ater Creutzer (1796) (figs. 17 and 18) are black beetles from 2·5-4·0 mm. in length and with the first three segments of the antennae and the legs reddish-yellow. It is rare and found in England south of Nottingham in decaying wood.

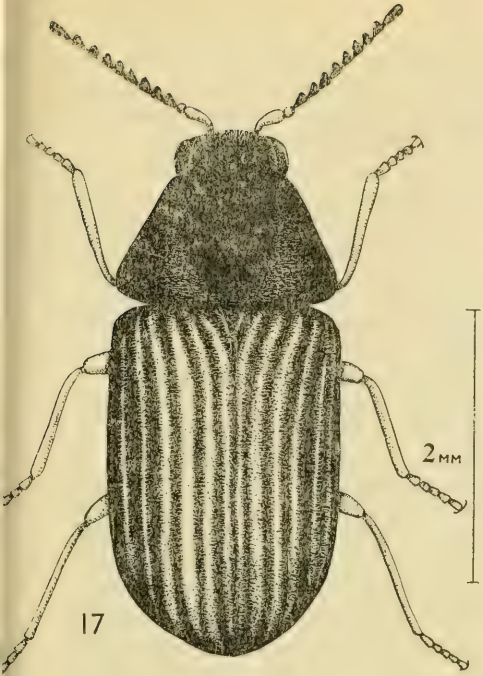
Lasioderma serricorne Fabricius (1792) (figs. 19 and 20) is a smallish beetle from 2·5-3·5 mm. in length. It is shining red in colour and covered with extremely fine puncturation and very short pubescence. It is a common stored food-product insect and cosmopolitan in distribution. It shows a particular preference to tobacco and its products and infests the freshly-dried leaf and all its subsequent stages of manufacture. It is universally known as the cigarette beetle. It has been found infecting a wide variety of dried vegetable substances and has been recorded from wood which was already infested with wood-boring larvae.

DORCATOMINAE.

The sub-family DORCATOMINAE was formerly considered a separate family the DORCATOMIDAE following on from the BOSTRICHIDAE but is now (it seems wrongly to me) included in the ANOBIIDAE. There are three genera, *Dorcatoma* Herbst (1792) length 2·0-2·6 mm., *Caenocara* Thomson (1859) length 1·8-2·4 mm., and *Anitys* Thomson (1863) length 2·4-3 mm. All species of these genera are somewhat globular and may be distinguished as follows:—

The elytra of *Dorcatoma* are elongate whilst those of *Caenocara* and *Anitys* are quadrate. The species of *Caenocara* (figs. 21 and 22) are

Figure 17. *Xyletinus ater* (Creutzer).
Figure 18. *Xyletinus ater* (Creutzer), lateral view.
Figure 19. *Lasioderma serricorne* (Fabricius).
Figure 20. *Lasioderma serricorne* (Fabricius), lateral view.
Figure 21. *Caenocara bovistae* (Hoffman).
Figure 22. *Caenocara bovistae* (Hoffman), lateral view



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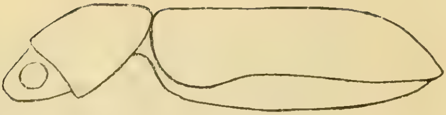

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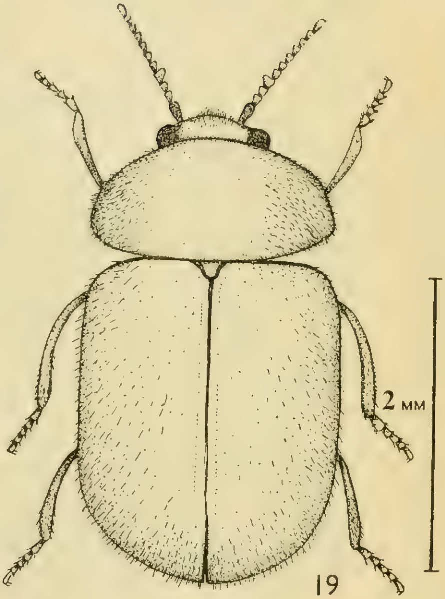

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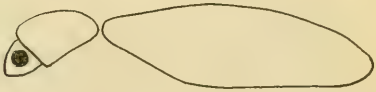

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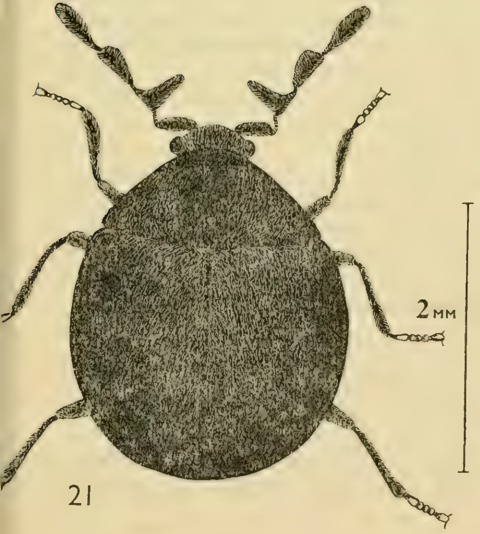

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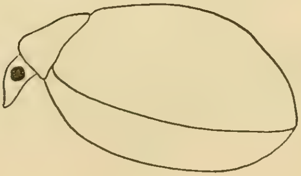

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black whilst *Anitys rubens* (Hoff.) (fig. 22), the single species, is red. In addition the eyes of *Caenocara* are prominent and the basal margin of the pronotum is sinuate at the sides. The eyes of *Anitys rubens* are not prominent and the basal margin of the pronotum is straight.

Five species, all found in dead trees, are contained in *Dorcatoma*. In *D. flavicornis* Fabricius (1792) the eyes are small and the elytra dull, the puncturation resembles *D. chrysomelina* and the pubescence resembles *D. dresdensis*. This is a rare insect found south of Yorkshire All the remaining species have larger eyes. *D. chrysomelina* Sturm (1837) is rare, also found in Lancashire and to the South. The elytra are dull and covered with very small punctures. *D. dresdensis* Herbst (1792) and *serra* Panzer (1796) are both less strongly punctured and the elytra are more shining. These two species may be differentiated by the pubescence, recumbent in *dresdensis* and erect in *serra*. Both the two latter species are very rare and whilst *dresdensis* is found only in Berks. and Norfolk, *serra* is found in S.E. England as far north as Berks. The two species of *Caenocara* are easier to identify if both are present! *C. bovistae* Hoffmann (1803) (figs. 21 and 22) is duller with stronger and more concentrated puncturation, the legs are pitchy and the length varies from 2-2·5 mm. It is found in counties south of Lancashire. It is rare and found in puff ball fungi.

C. subglobosa Mulsant (1864) on the other hand is more shining and the puncturation is finer and much less concentrated. It is, on the whole, smaller than *bovistae* being from 1·7 mm. to 2·0 mm in length. It is very rare, found only in Norfolk in the fungus *Lycoperdon gemmatum*.

Anitys rubens (Hoff.) is rare, found in decayed oak in Southern England as far north as Yorkshire.

I am very much indebted to Mr. E. B. Britton of the British Museum who kindly loaned me material for study. All the figures with the exception of *Ptilinus fuscus* were drawn from specimens in the N. H. Joy collection which our Society is proud to possess.

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FIELD MEETINGS, 1958.

OXSHOTT, SURREY—5th April 1958.

Leader: Mr. T. R. Eagles.

The meeting was abandoned owing to adverse weather conditions; four inches of snow covered the venue.

BOX HILL, SURREY—12th April 1958.

Leader: Mr. F. D. Buck.

The weather for this meeting was a considerable improvement over that for the Oxshott meeting, but was far from ideal. Eleven members met at the rendezvous on a day that was chilly and dull, with brief sunny intervals and a stiffish breeze from the N.E.

During the morning the party worked their way across the top of the hill, having crossed the stepping stones, and in the afternoon proceeded down into Juniper Valley.

The backwardness of the season was apparent by the lack of insects both in quantity and number of species. In view of this and the generally low temperature of the preceding few days it is not surprising that the only lepidopteron seen on the wing was *Archiearis* (*Brephos*) *parthenias* L. Other lepidopterous imagines seen were:—*Xylocampa areola* Esp., *Acleris* (*Peronea*) *ferrugana* Schiff., *A. cristana* Schiff., *Diurnea fagella* F. and *Zelleria hepariella* Staint. Only two larvae were reported—*Eilema deplana* Esp. and *Deileptenia ribeata* Clerck.

Our coleopterists were no more successful. A fallen beech yielded *Pachygluta ruficollis* (Er.), *Cerylon ferrugineum* Steph., *Rhizophagus perforatus* Er. and *R. bipustulatus* (F.). From moss in the afternoon the following species were taken: *Harpalus latus* (L.); *Amara communis* (Panz.); *Philonthus varians* (Gyll.); *P. cognatus* Steph.; *Catops kirbii* (Spence); *Hermaeophaga mercurialis* (F.), a single example, but its food plant, *Mercurialis perennis* L., was only just showing; and *Chrysolina violacea* (Mueller). One specimen of *Pilemostoma fastuosa* (Schall.) was taken though the *Inula* on which it feeds was very small indeed; however, a number of signs of the insect feeding were noted.

No spring migrant birds were seen or heard but the Nuthatch, Marsh Tit, Cole Tit, Goldcrest and Mistle-Thrush were heard singing and the Stock Dove was seen.

Most of the expected spring flowers were noted but were poor in quantity and the Butterbur had suffered much from the frost. The following plants were reported to be in bloom: *Adoxa moschatellina* L. (Moschatel), *Cardamine pratensis* L. (Cuckoo Flower), *Petasites hybridus* (L.) Gaertn. (Butterbur), *Glechoma hederacea* L. (Ground Ivy), *Viola odorata* L. (Sweet Violet), *V. hirta* L. (Hairy Violet), *Ranunculus ficaria* L. (Lesser Celandine), *Potentilla sterilis* (L.) Garcke (Barren Strawberry), *Buxus sempervirens* L. (Box), *Larix decidua* Mill. (European Larch) and *Acer plantanoides* L. (Norway Maple).

Tea was taken at the Stepping Stones Hotel.

OCKHAM, SURREY—20th April 1958.

Leader: Mr. F. M. Struthers.

A party of eight members and friends met at Effingham Station and proceeded along the road towards Ockham Common. The weather was warm and sunny with a very light N.W. breeze, and the ground was very dry.

When the common was reached numerous *Gonepteryx rhamni* L. were seen on the wing, also several *Polygonia c-album* L., *Aglais urticae* L., and *Nymphalis io* L. Several *Eupithecia nanata* Hübn. and *Pachycnemia hippocastanaria* Hübn. were disturbed from the heather and round the birches. *Archiearis* (*Brephos*) *parthenias* L. and several species of *Eriocrania* were flying. *Diurnea fagella* F. was fairly common on the tree trunks.

Several larvae of *Parascotia fuliginaria* L., *Euzophera neophanes* Durr., *Laspeyresia coniferana* Ratz., *Nepticula auromarginella* Rich. and *Cedistes farinatella* Dup. were found, and cocoons of *Pammene regiana* Zell. were found under the bark of sycamore. On a small pond many plants of the reedmace were noticed to be heavily infested with the micro *Limnoecia phragmitella* Staint.

Sallow catkins were collected for the larvae of *Orthosia* species and birch catkins for the larvae of *Eucosma penkleriana* F.R.

Birds seen or heard during the day included the Goldcrest, Blackcap, Willow Warbler, Chiffchaff, Tree Creeper and a pair of Teal.

The beetle *Dorcus parallelipipedus* (L.) was found commonly in rotting logs and *Cicindela campestris* L. was quite common on the sandy heath.

A grass snake and a fox were also seen during the day.

Tea was obtained at the shop by the station at 5 p.m.

EASHING, SURREY—26th April 1958.

Leader: Mr. F. Rumsey.

Four members met at Guildford Station and were joined by two others at Farncombe. The path taken had the River Wey on the left and the wooded hillside on the right, the latter sheltering the party to some extent from the cool N.W. wind. A little rain fell during the day but the sun came out for a short period in the afternoon. No butterflies were seen and only a few micros noted on the wing. Lepidopterous larvae taken or seen included *Endothenia gentianana* Hübn. from the heads of *Dipsacus fullonum* L. (Teasel), *Phthorimaea tricolorella* Haw. on *Stellaria holostea* L. (Greater Stitchwort), *Anthophila fabriciana* L. in the tops of *Urtica dioica* L. (Stinging Nettle), *Tischeria marginea* Haw. and *Nepticula auromarginella* Rich. in bramble, and *Lozotaenia forsterana* F. between the leaves of *Hedera helix* L. (Ivy); *Nola cucullatella* L., *Hemithea aestivaria* Hübn. and a number of other geometrid larvae were also seen but owing to the season being several weeks later than usual, they were small and not easily identified.

Among the spring plants were a fine lot of *Caltha palustris* L. (Marsh Marigold) in full bloom, *Arum maculatum* L. (Cuckoo pint) also in bloom, *Equisetum telmateia* Ehrh. (Great Horsetail) as yet only six inches high, *Ruscus aculeatus* L. (Butcher's Broom) and *Luzula* (Wood Rush) on the hillside, *Galeobdolon luteum* Huds. (Yellow Archangel) and *Viola riviniana* Rchb. (Common Violet) in flower. The Golden Saxifrage, *Chrysosplenium oppositifolium* L., was in great profusion, while the more local *C. alternifolium* L. was sparingly in flower. *Symphytum orientale* L. was found flowering by the roadside, a fine colony of the butterbur *Petasites hybridus* (L.) Gaertn. was seen by Eashing Bridge, and the abundant large tussocks of *Carex paniculata* L. (Panicled Sedge) by the river Wey were very striking. Also noted were *Geranium lucidum* L. (Shining Cranesbill) and *Erodium cicutarium* L.

The Blackcap, Nightingale, Whitethroat, Chiffchaff, and Willow Warbler were heard singing, and the Cuckoo was heard for the first time at nearly 4 p.m. A Robin's nest containing five eggs was found.

Polyporus squamosus Fr. was the only fungus reported.

An excellent tea was taken at the Little Thatch on the Guildford road.

CHIDDINGFOLD, SURREY—4th May 1958.

Leader: Mr. R. M. Mere.

Sixteen members and friends met at the rendezvous at Witley Station, and then continued in members' cars to Hog Wood. The weather was perfect; a cloudless, sunny day tempered by a light N.W. wind. Lepidoptera were very scarce; a few *Pieris brassicae* L., *P. napi* L., *Euchloë cardamines* L., *Leptidea sinapis* L., *Gonepteryx rhamni* L., and *Pararge aegeria* L. were seen; *Polygonia c-album* L., *Callophrys rubi* L., *Pyrgus malvae* L., *Phytometra viridaria* Clerck, *Trichopteryx* (*Nothopteryx*) *carpinata* Borkh., *Eucosma quadrana* Hübn., *Dasycera sulphurella* F., *Incurvaria muscalella* F. and *Adela viridella* Scop. were also seen. Larvae of *Coleophora alcyonipenella* Kell. and *Mompha conturbatella* Hübn. and cases of *Talaeporia pseudobombycella* Hübn. were taken.

There was a wonderful display of primroses and wild hyacinths. Some white wild hyacinths were seen and what may have been a cross between a primrose and a cowslip.

Nightingales were heard singing.

Large areas have been planted with conifers by the Forestry Commission. Unfortunately, these have grown fast, and much of Hog Wood is rapidly losing its entomological interest.

After the meeting the party was entertained to tea by Mrs. Mere at Mill House, Chiddingfold.

CHOBHAM COMMON, SURREY—11th May 1958.

Leader: Mr. R. F. Bretherton.

Nine members and visitors met at Woking Station and went by car to Staple Hill, whence they worked across the Common to Langshott Bog and Gracious Pond. There was fair sunshine, but with a strong westerly wind; this and the extreme lateness of the season, no doubt, accounted for the small number of insects seen. But the beautiful North American plant *Kalmia glauca* Ait. was in full flower in its restricted habitat, and the main patch of it, now about ten yards square, was eagerly photographed. In the wooded marsh of Gracious Pond the main objectives were larvae of *Parascotia fuliginaria* L. and *Aegeria spheciformis* Schiff.; but only one of the former and old workings of the latter could be found. A rather unusual find was the brilliant green pupa of *Pararge megera* L., suspended from the underside of a log.

Other Lepidoptera seen were *Pieris napi* L., *Euchloë cardamines* L., *Gonepteryx rhamni* L., *Nymphalis io* L., *Pararge aegeria* L., *Macrothylacia rubi* L., *Drepana lacertinaria* L., *Anarta myrtilli* L., *Phytometra viridaria* Clerck, *Eupithecia nanata* Hübn., *Aethalura punctulata* Schiff., *Ematurga atomaria* L., *Lithina chlorosata* Scop., *Ancylis uncana* Hübn., *Laspeyresia ulicetana* Haw., and *Gelechia betulea* Haw. Larvae were also found of *Achlya flavicornis* L., *Amathes castanea* Esp., *Polia hepatica* Clerck, (*tincta* Brahm.), *Geometra* (*Hipparchus*) *papilionaria* L., *Oporinia autumnata* Borkh., *Operophtera fagata* Scharf., and *Euzophera neophanes* Durr.

Mrs. Bretherton and her daughter entertained the party to tea at Ottershaw Cottage.

WROTHAM, KENT—18th May 1958.

Leader: Miss C. A. McDermott.

This was a joint meeting with the Kent Field Club and was attended by 24 members and friends on a fine, sunny day. The time of the year was chosen partly so that the larvae of *Hypercallia christiernana* L. (*citrinalis* Scop.) could be searched for, since two imagines were taken at the 1957 meeting. The concentrated efforts of a number of microlepidopterists were rewarded by the finding of about a dozen larvae

PULBOROUGH, SUSSEX. 24th May 1958.
Dr. Robertson, Miss Ashby, Sir Leonard Wakely.

WROTHAM, KENT. 18th May 1958.
Searching for larvae of *Hypercallia christiernana* L.

hidden in the spun shoots of *Polygala*. At least some of these were reared successfully. The downland Pyraustid and Plume moths had scarcely begun to emerge. Other microlepidoptera seen are listed below.

Amongst the Diptera the Bibionidae were in evidence; *Bibio marci* (L.), *B. ferruginatus* (L.), *B. varipes* Meig. and a species of *Dilophus* were noted. The hoverfly *Xanthogramma citrofasciatum* (Deg.) was seen once.

The Fly and Man Orchids were noted in flower.

Lepidoptera. Imagines: *Pieris rapae* L., *Euchloë cardamines* L., *Gonepteryx rhamni* L., *Pararge aegeria* L., *Coenonympha pamphilus* L., *Erynnis tages* L., *Pseudopanthera macularia* L., *Phytometra viridaria* Clerck, *Ancylis comptana* Frol., *Phthorimaea acuminatella* Sirc., numerous but worn, *Pancalia leuwenhoekella* L., *Glyphipterix fischeriella* Zell. just emerging, *Elachista argentella* Clerck (*cygnipenella* Hübn.) common, *Nemophora swammerdamella* L. Larvae: *Telphusa sequax* Haw., *Mompha miscella* Schiff., *M. conturbatella* Hübn., *Depressaria nanatella* Staint., *D. liturella* Schiff., a few *Coleophora gryphipennella* Bouch., *C. fuscedinella* Zell. on birch, hazel and hornbeam, a few *C. albitarsella* Zell., *C. conyzae* Zell., a few *C. discordella* Zell., *Eriocrania rubroaurella* Haw. (*purpurella* auct.) mines were abundant on birch but were mainly empty, *E. chrysolepidella* Zell. (*kaltenbachii* Wood) a few tenanted mines were found on hazel.

Several nymphs of the orthopteron *Pholidoptera griseoaptera* (Deg.) were taken and the Nightingale and Blackcap were both heard and seen.

PULBOROUGH, SUSSEX—24th May 1958.

Leader: Mr. D. A. Odd.

This meeting was attended by 28 members and friends who enjoyed a fine warm day exploring this little-known part of Sussex. Most of the area, on which a number of species of various orders were seen, is a large private estate. Among the lepidopterous larvae taken were the following: *Strymonidia w-album* Knoch, *Thecla quercus* L., *T. betulae* L., *Limenitis camilla* L., *Laothoë populi* L., *Apocheima hispidaria* F., *Phigalia pilosaria* Schiff., *Biston strataria* Hufn., *Hydriomena furcata* Thunb., and *Dryobotodes protea* Schiff.

Lepidoptera reported on the wing were: *Pieris napi* L., *Lycaena phlaeas* L., *Vanessa cardui* L., *Nymphalis io* L., *Aglais urticae* L., *Celastrina argiolus* L., *Coenonympha pamphilus* L. and *Pararge aegeria* L.

Surprise was expressed by the microlepidopterists at the absence of larvae from the fine display of *Stellaria holostea* L. both in the woods and in hedges.

The coleopterists worked the banks of the stream and lake but no reports of captures and observations have been submitted.

Mr. R. W. J. Uffen added the following details on Diptera: The strong cold wind so immobilised insects on the windward side of the hedges that normally Diptera could readily be tubed when the leaves to which they were clinging were steadied. In sheltered spots to the lee of the hedgerows, however, clouds of Diptera and other insects flew to and fro in the sunshine over certain bushes. Here were *Gonomyia* (*Platytoma*) *cinerascens* (Meig.) (Tipulidae) dancing with small Acalypterates in large numbers; *Crocuta* (*Siphona*) (Larvaevoridae) gyrating erratically over the twigs as though out of control; and small Empids, apparently more numerous than their victims, snapping up the feast in their jack-knifing legs, supplemented by many conspicuous yellow *Empis stercorea* L. spearing the larger insects with their long proboscides.

A plantain leaf overhanging a cow pat was covered on both sides with innumerable eggs of the coprophagous hoverfly *Rhingia*. On the ground in the fields *Tipula fascipennis* Meig. and *Limonia flavipes* (F.) were abundant, with many more *Crocuta*; little else could be swept in the high wind.

Tea was very kindly provided by Mrs. Odd at the leader's house and was much appreciated by the party.

SHOREHAM, KENT—31st May 1958.

Leader: Mr. S. N. A. Jacobs.

Eight members and friends met at the railway station, and at once moved off to work the downland to the east of the railway; the weather was fine, with a fresh wind and the ground was dry.

The usual spring butterflies were on the wing; *Pararge aegeria* L. showed signs of being in good numbers, while *Euchloë cardamines* L. was still flying and reasonably fresh. A single freshly emerged *Polyommatus icarus* Rott. was taken amongst about eight specimens seen. Larvae of *Lysandra coridon* Poda were found freely on examining the food plant. A close but unsuccessful search was made for the larvae of *Hypercallia christiernana* L. on *Polygala* (Milkwort). The secondary growth of *Cornus* and *Viburnum* had thickened noticeably, but there was still reasonably open ground along the footpath, and the derelict ploughland below produced the insects associated with *Achillea millefolium* L. (Yarrow) and *Origanum vulgare* L. (Marjoram).

The customary adder was noted, as were the usual downland flies and beetles; *Zygaena lonicerae* von Scheven was just beginning to fly and cocoons were noted.

Mr. R. W. J. Uffen added the following details:

The most conspicuous winged insects were the two migratory moths *Plusia gamma* L. and *Plutella maculipennis* Curt., *Hemimene plumbana* Scop. and the cranefly *Tipula fascipennis* Meig. Amongst several *Limonia nigropunctata* Schummel (Tipulidae) was an example of the reputedly rare *L. masoni* (Edwards). Hoverflies were, in general, scarce, but *Platycheirus manicatus* (Meig.) was common round bushes. Sawflies were numerous, but the few taken were all common species.

Hymenoptera—Symphyta: *Arge nigripes* (Retz.), *Macrophya annulata* (Geoff.), *Dolerus haematodes* (Schrank), *Cephus cultratus* (Evers.).

Diptera: *Isopogon brevirostris* (Meig.), *Trypetoptera punctulata* (Scop.), *Trypeta falcata* (Scop.).

Owing to the unfortunate ill health of Mrs. Manley, the invitation received from Colonel and Mrs Manley had perforce to be withdrawn, but the leader went to the house to deliver a message of regret from the meeting. Tea was taken in Shoreham after which the party broke up, having spent a very enjoyable day.

SANDWICH, KENT—8th June 1958.

Leader: Mr. J. M. Chalmers-Hunt.

A rather windy day with little sun; temperature moderate. Four members proceeded to the famous stretch of sand-hills by car from the railway station. Larvae of *Depressaria cnicella* Treits., both full grown and small, were common in spun leaves and in shoots of *Eryngium maritimum* L. (Sea Holly). Other larvae noted were: *Zygaena filipendulae* L.; *Argyroploce urticana* Hübn., bred in numbers from spun leaves of *Hippophaë rhamnoides* L. (Sea Buckthorn) and *Depressaria liturella* Schiff., bred from *Centaurea scabiosa* L. (Greater Knapweed). On the adjoining golf course "rough", several imagines of *Crambus chrysonuchellus* Scop. were disturbed, also *Nomophila noctuella* Schiff.

The following Coleoptera were observed on the foreshore: *Chrysolina haemoptera* (L.), *Melanimon tibiale* (F.), *Crypticus quisquilius* (L.), *Otiorrhynchus atroapterus* (Deg.), *Phyllobius virideaeris* (Laich.), *Philopedon plagiatus* (Schall.) and *Sitona griseus* (F.).

During the afternoon, a visit was made to Ham Fen, about five miles away. Here larvae of *Amelia* (*Tortrix*) *paleana* Hübn. were not uncommon in rolled leaves of *Cirsium arvense* (L.) Scop. (Creeping Thistle), under a plant of which was also found a case of *Coleophora troglodytella* Dup., attached to a grass stem. *Acleris* (*Peronea*) *aspersana* Hübn. was bred from larvae in spun shoots of *Filipendula ulmaria* L. (Maxim) (Meadow-sweet). The Coleoptera observed here were: *Cantharis pallida* Goeze and *Agriotes acuminatus* (Steph.).

Undoubtedly the meeting would have been far more productive, at least for the microlepidopterists, had there been a lot less wind.

The list of Coleoptera was kindly supplied by Mr. A. A. Allen.

HAM STREET, KENT—14th June 1958.

Leader: Dr. E. Scott.

This meeting took place on a lovely summer day with continuous sunshine, the heat being tempered by a slight east wind. The party, numbering thirteen, assembled in Orlestone Woods at a spot familiar to the majority, where we have parked cars and lunched for the last three years. Mr. S. Wakely was an absentee but the microlepidopterists were much assisted and encouraged by the presence of Mr. L. T. Ford.

Among the Lepidoptera, imagines were uncommon and larvae generally scarce; the indication of a bad season. Nothing unusual to the locality was added but most of the expected species turned up in small numbers. Lepidoptera reported included: *Argynnis selene* Schiff., *A. euphrosyne* L., *Hamearis lucina* L. which is rare away from the Downs, *Coenonympha pamphilus* L., *Callophrys rubi* L., *Polyommatus icarus* Rott., *Pyrgus malvae* L., *Ochlodes venata* Br. & Grey, *Hemaris tityus* L., *Arctia villica* L., *Euclidimera mi* Clerck, *Colobochyla salicalis* Schiff. which was fairly common, *Asthena albulata* Hufn., *Colostygia pectinataria* Knoch, *Euphyia luctuata* Schiff., *Eulype hastata* L., *Semiothisa notata* L., *Pseudopanthera macularia* L., *Xanthorhoë montanata* Schiff., *Anania funebris* Stroem., *Stenoptilia bipunctidactyla* Scop., *Argyroploce arcuella* Clerck, *A. lacunana* Dup., *A. urticana* Hübn., *Chlidonia baumanniana* Schiff., *Bactra lanceolana* Hb., *Oecophora geoffrella* L., *Borkhausenia minutella* L., *Choreutis myllerana* F. (local), *Glyphipterix fuscoviridella* Haw., *G. thrasonella* Scop., *G. fischeriella* Zell., *Coleophora galactaula* Meyr., *Tinea fulvimitrella* Sodof., *T. cloacella* Haw., *Nemotois degeerella* L., *Adela fibulella* Schiff., *Micropterix mansuetella* Zell., *M. calthella* L.

Larvae taken included: *Clostera pigra* Hufn., *Colotois pennaria* L., *Chesias legatella* Schiff., *Depressaria angelicella* Hübn.

Mr. Henderson worked assiduously for Coleoptera, particularly those in association with aspen. He lists the following among many common species: *Cychramus luteus* (F.) on viburnum blossom; *Ctenicera* (*Corymbites*) *nigricornis* (Panz.), *Cryptocephalus sexpunctatus* L., *Phyllodecta laticollis* Suff., *Lochmaea capreae* (L.), *Lagria atripes* (Muls. & Guil.), *Byctiscus populi* (L.) and *Polydrusus flavipes* (Deg.), all on aspen; and *Curculio venosus* (Grav.) on *Corylus avellana* L. Of these the *Corymbites* and *Cryptocephalus* are rare and the *Lagria* is a recent addition to the British list.

Mr. Uffen reported on Diptera as follows:—Mosquitoes were abundant and were accompanied in the wetter places by numerous dolichopodid flies. Other flies were inconspicuous, except for a few persistent clegs. A number of the robber fly *Dioctria linearis* Meig. were noted. An example of *Ptychoptera minuta* Tonnoir was taken by a pond in a dark hornbeam wood, and several *Ocyptera interrupta* Meig. were found flying; these were settling low in the mixed herbage where a wood had been cleared a few years previously.

The continuous song of the Nightingale throughout the day was noteworthy.

Soon after 4 p.m. the party returned to Ham Street and had tea at the "King's Head".

Dr. and Mrs. Parfitt worked with light after the meeting. In spite of unfavourable conditions a fair number of moths were recorded, including: *Cucullia gnaphalii* Hb. and the rare "thorn" *Selenia lunaria* Schiff.

WHIPPENDELL WOOD, HERTS.—22nd June 1958.

Leader: Mr. R. W. J. Uffen.

This meeting was held in pouring rain, which was the more unfortunate as two of the four optimistic members who attended had only recently returned from overseas. Most of the insects had taken shelter, and little of note was seen, but all were agreed that this very varied deciduous woodland, with the adjacent golf course and river, is worthy of further visits in more propitious weather.

A noisy flock of Long-tailed Tits hailed the final downpour which caused the party to regret completing the tour after tea—taken deservedly at about 2.30 p.m.

HALLING, KENT—29th June 1958.

Leader: Mr. C. H. Hards.

Twelve members attended this meeting. The weather was fine with long sunny periods. In spite of this, butterflies were scarce and mostly single specimens were noted.

Pods of *Silene cucubalus* Wibel were collected for larvae of *Hadena conspersa* Schiff., *H. lepida* Esp. and *Eupithecia venosata* F. Larvae of *Nephopteryx obductella* Zell. were again found. From one an example of the Tachinid fly *Rhynchista prolixa* (Meig.) was reared.

Despite the apparent shortage of material for the macrolepidopterists all members enjoyed the day.

Lepidoptera noted included: *Pieris napi* L., *Gonepteryx rhamni* L., *Vanessa cardui* L., *Maniola jurtina* L., *Polyommatus icarus* Rott., *Ectypa glyphica* L., *Euclidimera mi* Clerck, *Scopula ornata* Scop., *Anania verbascalis* Schiff., *Scythris senescens* Staint., *Alucita baliodactyla* Zell. and larvae, *Acleris* (*Peronea*) *aspersana* Hübn. larvae, *Thiotricha subocellea* Steph., *Mompha divisella* H.-S. (*decorella* Steph.) larvae, *Douglasia ocnerostomella* Staint. and *Coleophora onosmella* Brahm.

FOLKESTONE, KENT—6th July 1958.

Leader: Mr. J. M. Chalmers-Hunt.

The weather turned out to be fine, warm and windless, for this most interesting and successful meeting. Some 15 people proceeded to the Warren, where the following Lepidoptera were noted: *Plebejus argus* L., *Diacrisia sannio* L. (only males; how rarely one sees females), *Zanclognatha grisealis* Schiff., *Cucullia verbasci* L. full grown larvae on *Verbascum* sp., *Ectypa glyphica* L., *Alcis* (*Cleora*) *repandata* L., *Aplasta ononaria* Fuess. about 12 examples, *Laspeyresia leplastriana* Curt. pupae in wild cabbage stems, *L. microgrammana* Guen., *Amelia* (*Tortrix*) *viburnana* Schiff. & Denis bred from larvae on *Teucrium scorodonia* L. (Wood Sage), *A.* (*T.*) *paleana* Hübn. larvae on *Centaurea nigra* L.

(Lesser Knapweed), *Clepsis* (*Tortrix*) *consimilana* Hübn., *Phalonia rupicola* Curt., *Hemimene plumbana* Scop., *Argyrotoza bergmanniana* L., *Metzneria carlinella* Staint., *Stomopteryx anthyllidella* Hübn. bred from larvae in *Anthyllis vulneraria* L. (Kidney Vetch), *Coleophora onosmella* Brahm, *Douglasia ocnerostomella* Staint.

A capture of particular interest was made by Mr. R. W. J. Uffen, who secured a pair of *Ethmia terminella* Fletcher (*sexpunctella* Hübn.) *in cop;* this is a new locality for the species, and the only other one to the knowledge of the writer besides Dungeness, Kent.

The following Hemiptera-Heteroptera were swept: *Capsus* (*Rhopalotomus*) *ater* (L.), *Lygus pabulinus* (L.), *Calocoris norvegicus* (Gmel.), *Tinicephalus hortulanus* (Meyer-Durr), *Macrotylus paykulli* (Fall.), *Plagiognathus chrysanthemi* (Wolff), *Hylopsallus* (*Psallus*) *perrisi* Muls., *Nabis rugosus* (L.).

The following Coleoptera were taken: *Harpalus rubripes* (Dufts.), *Amara aenea* (Deg.), *Cyrtusa pauxilla* (Schmidt), *Meligethes planiusculus* (Heer) on *Echium*, *Athous haemorrhoidalis* (F.), *Dascillus cervinus* (L.), *Isomira murina* (L.), *Pyrochroa serraticornis* (Scop.), *Longitarsis exoletus* (L.) on *Echium*, *Apion ervi* Kirby, *A. ononis* Kirby, *A. loti* Kirby, *Miccotrogus picirostris* (F.), *Ceuthorrhynchus assimilis* (Payk.), *Cionus scrophulariae* (L.) on *Verbascum* sp., *C. alauda* (Herbst) also on *Verbascum* sp., and the larvae of *Baris laticollis* (Marsh.) in the stems of Wild Cabbage.

A good tea was had at the Warren Tea Chalet. Our thanks are due to Mr. A. A. Allen for the lists of Coleoptera and Hemiptera-Heteroptera.

HIGH HALSTOW, KENT—12th July 1958.

(Northward Hill Nature Reserve.)

Leader: Mr. A. W. Gould.

Ten members of our Society and one visitor joined four members of the Kent Field Club at the "Red Dog", High Halstow, and under their leadership proceeded through the orchard to the western edge of the Northward Hill Nature Reserve. The morning was cool, and a short but heavy shower made the sombre thorn and elm thickets appear very gloomy. Few insects were on the wing, but a nice selection of common woodland beetles cheered the coleopterists.

Soon after mid-day we emerged onto the open grassy plateau, the sun shone, and a great find was announced—a single specimen of the long lost *Hyponomeuta irrorella* Hübn. had been netted. The last records of this species were in the 1880's. Lunch was taken by some, but the 'micro' men refused to consider such trifles seriously and they spent the rest of the day searching the spindle trees, *Euonymus europaeus* L., in the neighbourhood. With two imagines, two pupae, and one larva to show they were well paid for their pains.

The Kent botanists led the remainder of the party through the brambles and bracken to the grassy clearing adjoining the marsh meadows at the northern edge of the wood. Here the coleopterists found a rich and varied harvest. The longicorne, *Strangalia maculata* (Poda), was present in unusual numbers, buzzing about the bramble flowers, and a dozen specimens were taken for a foreign visitor.

The afternoon finished with a quiet walk through the heronry for which the reserve is justly famous. The young had left the nests in the tall oaks and elms but many watchful adults stood sentinal or soared uneasily in the windy sky.

Thanks are due to the Kent Field Club and particularly to Mr. Clivectermy who led during an interesting and enjoyable day.

The following Coleoptera were reported by those working the Order: *Nebria brevicollis* (F.), *Notiophilus palustris* Dufts., *Bembidion guttula* (F.), *Amara aulica* (Panz.), *Cercyon haemorrhoidalis* (F.), *Oxypoda brevicornis* (Steph.), *Drusilla canaliculata* (F.), *Cypha longicornis* (Payk.), *Conosomus testaceus* (F.), *Tachyporus solutus* Er., *Quedius laevicollis* (Brullé), *Q. picipes* (Man.), *Staphylinus latebricola* Grav., *Ocypus aeneocephalus* (Deg.), *Lathrobium fulvipenne* (Grav.), *Paederus littoralis* Grav., *Stenus clavicornis* (Scop.), *S. brunnipes* Steph., *Magarthrus affinis* Miller, *Subcoccinella vigintiquattuorpunctata* (L.), *Adalia bipunctata* (L.) ab. *quadrimaculata* Scop., *A. biabilis* (Marriner), *Scymnus auritus* Thunb., *Dacne rufifrons* (F.), *Meligethes lumbaris* Sturm., *Enicmus histrio* Joy, *Corticaria impressa* (Ol.), *Cryptophagus pilosa* Gyll., *Atomaria atricapilla* Steph., *Scaphisoma boleti* (Panz.), *Mycetophagus quadripustulatus* (L.), *Agrilus laticornis* (Ill.), *Athous hirtus* (Herbst), *Agriotes sputator* (L.), *Silis ruficollis* (F.), *Rhagonycha limbata* Thoms., *Malthinus flaveolus* (Payk.), *M. fasciatus* (Ol.), *Drilus flavescens* (Geof.), *Grynobius excavatus* (Kug.), *Anobium punctatum* (Deg.), *Isomira murina* (L.), *Leptura livida* F., *Strangalia maculata* (Poda), *Lema melanopa* (L.), *Cryptocephalus hypochaeridis* (L.), *C. pusillus* F., *C. labiatus* (L.), *Chrysolina orichalcea* (Muel.), *Batophila aerata* (Marsh.), *Sphaeroderma rubidum* Graells, *Rhinosimus planirostris* (F.), *Oedemera nobilis* (Scop.), *O. lurida* (Marsh.), *Mordellistena humeralis* (L.), *Anaspis pulicaria* Costa, *A. humeralis* (F.), *Caenorhinus germanicus* (Herbst), *Apion haematodes* Kirby (*frumentarius* (Payk.)), *A. rubens* Steph., *A. rufirostre* (F.), *A. striatum* Kirby, *A. reflexum* Gyll., *A. loti* Kirby, *A. marchicum* Herbst, *Phyllobius parvulus* (Ol.), *Rhynchaenus quercus* (L.), *R. alni* (L.), *Miccotrogus picirostris* (F.), *Anthonomus pedicularius* (L.), *Ceuthorhynchus pollinarius* (Forst.), *C. pleurostigma* (Marsh.), *Curculio* (*Balaninus*) *venosus* (Grav.), *C.* (*B.*) *glandium* Marsh., *C.* (*Balanobius*) *salicivorus* Payk., and *C.* (*B.*) *pyrrhoceras* Marsh.

Lepidoptera were reported as follows: *Callophrys rubi* L., one larvae swept; *Xanthorhoë quadrifasciata* Clerck; *Stenoptilia pterodactyla* L.; *Tortrix forskåleana* L.; *Hyponomeuta irrorella* Hübn., two imagines, two pupae and one larva taken at the base of spindle trees; *Sterrha biselata* Hufn.; and *Scythropia crataegella* L., larvae in webs on hawthorn.

ALICE HOLT FOREST, HANTS.—20th July 1958.

Leader: Baron de Worms.

After some very warm weather a heavy thunderstorm in the metropolitan area apparently deterred a number of members from attending, since only three arrived at Bentley station by the scheduled train. However, these were supplemented by some dozen others who had come by car.

Owing to a further severe storm a delay was made before starting for the forest. The elements soon relented and the day turned out very sunny, though a high wind developed in the afternoon. It was not long before *Apatura iris* L. was on the move. About mid-day one of the younger members just missed one as it glided over his head. A little later a fine male obligingly alighted on an oak twig near the railway bridge and sat opening and closing its wings for several minutes in full view of the party, but just out of reach of any nets. While the party was having lunch at the top of the ridge, they were entertained by a fine display of three Purple Emperors which kept sailing round together, sometimes swooping low, but always just out of reach. Several others were also seen in the vicinity.

Limenitis camilla L. was well to the fore and in good order for the most part, whereas there seemed to be a distinct dearth of *Argynnis paphia* L. and of *A. cydippe* L. Also noted were *Aglais urticae* L. and *Vanessa cardui* L., while *Maniola jurtina* L., *Aphantopus hyperantus* L. and *Thecla quercus* L. were in fair abundance. A very welcome tea at the Post Office Café at Buckshorn Oak brought to an end a very enjoyable day.

CHIPSTEAD, SURREY—27th July 1958.

Leader: Mr. F. T. Vallins.

The day was dull with a south-westerly wind and a temperature that was low for the time of the year. Fortunately, for the six members who assembled at Chipstead station, no rain fell until the late afternoon when they were on the return journey.

The party followed the ride just inside the northern edge of Banstead Woods to Perrott's Farm, and then took the sunken path leading towards and under the railway. By turning along the track skirting the line, the "Germander Field" was reached after once more passing under the railway by the next tunnel. Very few insects were on the wing and those seen were mostly found by beating, sweeping and careful searching.

This locality is noted for its many interesting and rare plants, and the changes in their frequency and condition are usually observed at this meeting. *Teucrium botrys* L. was fairly plentiful but rather stunted, probably owing to the growing competition from other carpeting plants; but *Ajuga chamaepitys* (L.) Schreb. could not be found despite assiduous searching. In the next field, *Phyteuma tenerum* R. Schulz appeared to have strengthened its hold in the district as it was found well established in several places where it had not been observed on previous visits. Other noteworthy finds were some white specimens of *Centaurium minus* Moench, and a large plant of *Helianthemum chamaecistus* Mill. bearing cream, instead of yellow, flowers.

The following insects were taken:—

Lepidoptera: *Gastropacha quercifolia* L., one male at rest in a hedge; *Melanthia procellata* Schiff., one only: *Phycita semirubella* Scop., several were disturbed from low herbage; *Eucosma solandriana* L., one only; *Depressaria badiella* Hübn; *Telphusa sequax* Haw., one only on rock-rose.

Hemiptera, Typhlocybidae: (Collected and determined by Mr. Brian Gerard): *Cicadella notata* (Curt.), on thyme; *C. urticae* (F.), on nettles in several places; *C. melissae* (Curt.), on deadnettles near station; *C. aurata* (L.), on nettles; *C. atropunctata* (Goeze), on nettles; *C. germari* (Zett.); *Alebra albostriella* (Fall.), a typical female; and *A. wahlbergi* (Boh.), on maples in the woods.

OTFORD, KENT—2nd August 1958.

Leader: Mr. E. E. J. TRUNDELL.

Eight members and friends attended the meeting and were rewarded with a fine day.

The collecting area is somewhat restricted, but is noteworthy as a locality for *Lysandra bellargus* Rott. at the appropriate time of the year.

Lysandra coridon Poda was abundant but no aberrations were reported. *Argynnis aglaia* L. was taken and a few other common butterflies were seen. The moths included one example of *Eremobia ochroleuca* Schiff. found at rest; *Phycita semirubella* Scop., *Lithocolletis scabiosella* Dougl., *L. sylvella* Haw., *Pyrausta nigrata* Scop., *Tinea arcella* F., *Nemotois scabiosella* Scop. and larvae of *Ornix scoticella* Staint. and *Depressaria heracliana* L.

Among the captures of Diptera two interesting discoveries were made. *Agromyza felleri* Hg. was taken and constitutes the first British record of the imago of this species. The larvae of *Liriomyza lutea* Meig. were obtained in the seeds of *Pastinaca sativa* L. so that the food plant of this species has now been confirmed for the first time. Other Agromyzidae taken during the meeting were *Melanagromyza pulicaria* (Meig.), *Liriomyza cicerina* (Rond.), *L. pusio* (Meig.), *L. fasciola* (Meig.), *L. centaureae* Hg., *L. flaveola* (Fall.), *L. trifolii* (Burgess), *Pseudonapomyza atra* (Meig.) and *Phytomyza origani* Hg.

BURNHAM-ON-CROUCH, ESSEX—6th August 1958.

Leader: Mr. E. E. Syms.

Only four members attended this meeting. They walked along the river wall to Cricksea creek and back. Nothing was seen on the wing, but young larvae of *Thetidia* (*Euchloris*) *smaragdaria* F. were common on the Sea Wormwood, and *Cucullia asteris* Schiff. larvae were found on the Sea Aster.

Galls of the beetle *Mecinus collaris* Germ. were plentiful at the base of the flowers of the Sea Plantain. One of the beetles emerged the next day.

Lepidoptera noted during the day included: a single example of *Nymphalis io* L.; one full fed larva of *Eriogaster lanestris* L. which was found on a path; *Abraxas grossulariata* L., commonly on blackthorn bushes on the sea wall; *Agdistis bennetii* Curt., numerous on Sea Lavender; *Eucosma aemulana* Schlag., common. Some small larvae found on Sea Aster were thought to be the local species *Eucosma heringiana* Jäckl.; and the small larva of *Coleophora artemisiella* Scott was not uncommon on Sea Wormwood.

The dipteron *Helophilus parallelus* (Harris) was also taken.

OXSHOTT, SURREY—17th August 1958.

Leader: Mr. F. M. Struthers.

Twelve members and friends attended this meeting. The weather was bright and sunny with little or no wind.

The party proceeded up the slope towards the pinewoods in the direction of the Black Pond. After lunch it was decided to work towards Arbrook Common, instead of going on to Black Pond, and to search the alder trees with the hope of finding *Gracillaria falconipennella* Hübn.

The following butterflies and moths were seen on this occasion: *Gonepteryx rhamni* L., *Eumenis semele* L., *Pararge aegeria* L., *Lycophotia varia* de Vill., *Anarta myrtilli* L., *Rivula sericealis* Scop., *Calothysanis amata* L., *Cosymbia albipunctata* Hufn., *Lygris testata* L., *Epirrhoë alternata* Müll (*sociata* Borkh.), *Gnophos obscurata* Schiff., *Nomophila noctuella* Schiff., *Endotricha flammealis* Schiff., *Crambus pinellus* L., *C. inquinatellus* Schiff., *Ancylis unguicella* L., *Argyroploce betuletana* Haw., and *Eucosma solandriana* L. Pupae of *Nonagria typhae* Thunb. were also found.

Tea was taken at the Hut by the station about 4.30 p.m.

COSFORD MILL, SURREY—24th August 1958.

Leader: Mr. S. Wakely.

In spite of the persistent showers and bad weather forecast, eleven people arrived at Cosford Mill for this meeting, where we were met by Mr. Loarridge who allowed the party to ramble round his interesting property.

OXSHOTT, SURREY. 17th August 1958.

Left to right : N. Wilding, F. Rumsey, M. G. Morris (*behind*), F. M. Struthers, Dr. D. A. B. Macnicol, Mrs. Struthers, Mrs. Trundall, R. F. Richards (*behind*), S. Wakely, D. Agassiz, ——— (*behind*).

BETCHWORTH, SURREY. 30th August 1958.

N. Diver (*visitor*), S. Wakely, F. Rumsey, Dr. D. A. Macnicol, ———, D. Agassiz.

During one of the few bright intervals, a freshly emerged *Polygonia c-album* L. was seen, but it managed to elude the nets of its would-be captors. *Pararge aegeria* L. was also observed. Numbers of *Gracillaria* larvae were taken in rolled alder leaves but they proved to be the common *G. elongella* L. A few larvae of *Bucculatrix cidarella* Zell. and *Heliozela resplendella* Staint. were also found on the alder leaves.

Other species found were *Apatele psi* L., larvae on beech; *Nonagria typhae* Thunb., pupae in stems of Reedmace; *Evergestis straminalis* Hübn.; *Acleris* (*Peronea*) *hastiana* L. and *Gracillaria stigmatella* F., larvae on sallow; and *Lithocolletis schreberella* F., larvae in leaves of elm.

A fine specimen of the rare longicorn beetle *Prionus coriarius* (L.) was found; also several specimens of the handsome green *Chrysolina menthastri* (Suff.) were taken on *Mentha aquatica* L. (Water Mint).

About four o'clock the rain which had threatened all day came on again, and we were glad to seek shelter in the mill, where Mr. Loarridge gave us the known history of this old mill and pointed out items of interest in the building. This was followed by a most enjoyable tea in the picturesque room of the Mill House where a large wood fire on the old-fashioned hearth added to the cosy effect and comfort of everybody. After thanking our host and hostess for their generous hospitality we departed for home—with the rain once more pelting down.

BETCHWORTH, SURREY—30th August 1958.

Leader: Mr. B. F. SKINNER.

Eight members and one visitor attended this meeting and experienced one of the sunniest and warmest days this summer. The party proceeded through the lime works towards the downs where most of the days collecting took place.

After lunch on top of the downs, members made their way down to the pond. Here in the shallower parts one member obtained a number of pupae of *Nonagria typhae* Thunb. from the stems of *Typha latifolia* L., while other members of the party rested.

As no place for tea was available the party split up and members proceeded home in their various directions.

The following species of Lepidoptera were recorded: *Vanessa cardui* L., *Lysandra coridon* Poda, *Hesperia comma* L., *Gortyna flavago* Schiff., *Thera juniperata* L., larvae beaten from *Juniperus communis* L. (Juniper), *Eupithecia pimpinellata* Hübn. found on *Pimpinella saxifraga* L. (Burnet Saxifrage), *Rhodaria aurata* Schiff., *Crambus inquinatellus* Schiff., *C. geniculeus* Haw., *Oidaematophorus carphodactyla* Hübn., larvae and pupae plentiful in flowers of *Inula conyza* D.C. (*squarrosa* (L.) Bern.), *Acleris* (*Peronea*) *aspersana* Hübn., *Ornix scoticella* Staint. larvae in leaves of *Sorbus aria* agg. (White Beam). A search was made for larvae of *Eupithecia denotata* Hübn. in the flower heads of *Campanula* but without success.

DRUID'S GROVE, SURREY—7th September 1958.

Leader: Mr. T. R. Eagles.

Ten members and visitors attended. Apart from one slight shower the day was fine. There was a fair amount of sunshine and the temperature was about average for the time of year.

The party went by the path across the field on the west side of the railway line and, after working in the woods, returned the same way.

The ground and the low herbage were very wet after the phenomenal storm of the previous Friday evening. However, beating and searching for lepidopterous larvae were possible. For example, by looking up at the leaves of wych elm a dozen or so larvae of *Abraxas sylvata* Scop. (Clouded Magpie Moth) were found without much difficulty. Searching and beating for the larva of *Stauropus fagi* L. (Lobster Moth) was another matter. One only was secured and that was found. Larvae of *Cosymbia linearia* Hübn. (Clay Triple-lines) were beaten fairly freely. Four larvae of *Deilephila elpenor* L. (Large Elephant Hawk) were found on *Chamaenerion angustifolium* (L.) Scop. (Rosebay Willow-herb). All were nearly full-fed and all of the dark form. A visit was paid to the spot where *Lithospermum officinale* L. (Gromwell) grows and larvae of *Ethmia decemguttella* Hübn. of all sizes were noted. Other microlepidopterous larvae seen were *Argyrotoza schalleriana* L. on *Viburnum lantana* L., *Pammene weirana* Dougl. between united leaves of beech, *Mompha terminella* Westw. very common in leaves of *Circaea lutetiana* L. and *Lithocolletis geniculella* Rag. on sycamore. Imagines noted were *Argyresthia semitestacella* Curt. and *Ypsolophus sequellus* Clerck.

The only butterfly noticed on the wing was *Pararge aegeria* L. Of the larger moths the following were seen—*Rivula sericealis* Scop., *Colostygia pectinataria* Knoch and *Citria lutea* Stroem.

The Small Balsam, *Impatiens parviflora* DC., was almost everywhere in the wood and the plant seemed to have increased since the last visit.

One of the younger members scrambled down to the well-known spot where the badgers hold court. The colony is still thriving.

This was not officially a fungus foray but conditions were so favourable that some of the party fell from grace. The species noted were many and included some very interesting Earth-stars, some so good that a halt was made for a photograph to be taken. As a result the lepidopterists were not seen again until tea was taken at the Stepping Stones Hotel. The Earth-stars were *Geaster bryantii* Berk. and *G. fimbriatus* Fr. A noteable find was *Amanitopsis inaurata* (Secr.) Boud. Some 60 other species were seen including *Lepiota acutesquamosa* (Weinm.) Fr., *L. sistrata* Fr., *Tricholoma ionides* (Bull.) Fr., *Pleurotus petaloides* (Bull.) Fr., *Lactarius pallidus* (Pers.) Fr., *L. volemus* Fr., *Polystictus hirsutus* (Wulf.) Fr., *Thelephora anthocephala* (Bull.) Fr., *Clavaria pistillaris* L., *Leptopodia ephippium* (Lév.) Boud., *Aleuria vesiculosa* (Bull. ex Fr.) Boud. and *Bulgaria inquinans* (Pers.) Fr.

It was noticed that in a field near the woods the Opium Poppy, *Papaver somniferum* L. and Chicory, *Cichorium intybus* L. were growing.

BOOKHAM, SURREY—14th September 1958.

Leader: Mr. R. W. J. Uffen.

Seven members were treated to a fine day for this meeting. All had much the same interests, with the result that a few insects were searched for thoroughly, but the list of species noted is short. Most of the time was spent looking for lepidopterous larvae.

Lithocolletis species in mines on both sides of apple leaves were sampled, whilst mines presumed to be those of *Lithocolletis comparella* Zell. were found on white poplar. Larvae of an as yet uncertain eucosmid moth were noted feeding on the seeds of *Achillea ptarmica* L. Searching for pupae of *Gortyna flavago* Schiff. revealed larvae of a large syrphid fly, possibly *Cheilosia* spp., which Mr. Wakely had found several times before feeding in the stem-bases of *Cirsium palustre* (L.) Scop.

Tea was taken at Bookham Grange Hotel.

The following are the lepidopterous larvae noted: *Perizoma alchemillata* L., *Phalera bucephala* L., *Lophopteryx capucina* L., *Scoliopteryx libatrix* L., *Acleris* (*Peronea*) *boscana* F., *A.* (*P.*) *ferrugana* Schiff., *Coleophora discordella* Zell. and *Leucoptera lotella* Staint.

BENFLEET, ESSEX—20th September 1958.

Leader: Mr. S. Wakely.

Although preceded by a rainy night, the weather was bright and sunny for this meeting. The attendance, however, was poor and numbered exactly four. The party agreed to split up and two members went to Canvey Island to search for larvae of *Thetidia* (*Euchloris*) *smaragdaria* F. and *Cucullia asteris* Schiff. None of the former were found, but the latter were taken in all sizes on Sea Aster.

The other two members of the party gave most of their attention to microlepidoptera and started by working the higher ground overlooking Canvey. During their search they came across single larvae of *Lasiocampa quercus* L., *Gastropacha quercifolia* L. and *Ceramica pisi* L. Larvae of the very local *Tischeria angusticolella* Dup. were found sparingly in leaves of Dog Rose. Other larvae found were *Phalonia hybridella* Hübn. in seedheads of *Picris echioides* L.; a few larval cases of a coleophorid on leaves of *Agrimonia eupatoria* L. which were thought to be *Coleophora potentillae* Staint.; and larval cases of *Coleophora artemisicolella* Bruand on seeds of *Artemisia vulgaris* L. A single specimen of *Larentia clavaria* Haw. was netted.

Numbers of the beetle *Galeruca tanaceti* (L.) were seen sunning themselves on the herbage. The two local grasshoppers, *Roeseliana roeselii* (Hagenb.) and *Tettigonia viridissima* L. were also noted.

Species of Lepidoptera found on the salterns were *Goniodoma limoniella* Staint., larval cases on flowerheads of Sea Lavender; *Eucosma aemulana* Schläg., larvae common in seedheads of *Aster tripolium* L. (Sea Aster); and a single larval case of *Coleophora artemisiella*

Scott was found on a few isolated plants of Sea Wormwood. On the way to the station a larval web of *Euproctis chrysorrhoea* L. was seen on blackthorn with some of the small larvae visible on the outside walking about and sunning themselves.

The following beetles were also recorded: *Amara convexiuscula* (Marsh.), *Dromius linearis* (Ol.), *Noterus capricornis* (Herbst.), *Hydroporus planus* (F.), *Dytiscus circumflexus* F. and *Phytonomus posticus* (Gyll.).

MICKLEHAM, SURREY—27th September 1958.

Leader: Mr. F. Rumsey.

Although the day was fine not very much was noted on the wing by the party of eight who attended the meeting. This was probably due to the easterly direction of the wind.

Tiliacea aurago Schiff. was seen and the following lepidopterous larvae were noted: *Lophopteryx capucina* L., *Drepana cultraria* F., and *Bena fagana* F. on beech; *Laspeyresia grossana* Haw. in beech nuts; *Coleophora therinella* Tengst on thistles; *C. erigerella* Ford on *Erigeron acris* L. (Blue Fleabane); *Lithocolletis geniculella* Rag. in sycamore leaves; *L. coryli* Nic. in hazel leaves; *L. schreberella* F. in elm leaves; *Gracillaria auroguttella* Steph. commonly on *Hypericum*; *Bucculatrix frangulella* Goeze on Purging Buckthorn; *Nepticula catharticella* Staint. in leaves of Purging Buckthorn; and *Phalera bucephala* L. and *Bapta temerata* Schiff. were reported with no further details.

BANSTEAD WOOD, SURREY—4th October 1958.

(Fungus Foray.)

Leader: Mr. W. H. Spreadbury.

Nine members and friends attended. The day was punctuated by heavy showers and there were only occasional glimpses of the sun.

Fungi were in great and interesting variety, some 90 species being identified. The genus *Russula* was particularly well represented.

Worthy of special mention were a very distinct form of *Amanitopsis fulva* (Grev.) Rea with a rough stem, a thick tough volva and a golden yellow pileus; *Lepiota acutesquamosa* (Weinm.) Fr.; *Nyctalis asterophora* Fr. parasitical on a *Russula*; *Cantharellus cinereus* (Pers.) Fr. bearing superficially a striking resemblance to small specimens of the unrelated *Craterellus cornucopioides* (Linn.) Fr. which latter was very abundant though unfortunately not in edible condition owing to the wet; *Helvella crispa* Scop. ex Fr. and *Sphaerobolus stellatus* Tode.

The rather beautiful crested variety of the Lady-fern, *Athyrium filix-femina* (L.) Roth. found last year was still doing well.

It was almost a blank day for the entomologists. Wind and heavy rain gave hopeless conditions. However, one larva of *Pheosia gnoma* F (Lep., Notondontidae) was found crawling up an oak trunk, doubtless blown from a neighbouring birch. Larvae of *Bena fagana* F.

(*prasinana* L. auctt. nec L.) were plentiful on the beeches, many being drowned in the rain pools at the bases of the larger trunks.

The two grasshoppers *Leptophyes punctatissima* (Bosc.) and *Meconema thalassina* (Deg.) were noted and some larvae of *Scardia boleti* F. (Lep., Tinaeidae) were taken in fungus.

No one seemed to be unduly wet despite the rain and a welcome tea was enjoyed in the "crypt" of the Valley Bakery near Chipstead Station.

List of fungi:—*Amanita citrina* (Schaeff.) Roques = *mappa*, *A. rubescens* (Pers.) Fr., *Amanitopsis vaginata* (Bull.) Roze, *A. fulva* (Grev.) Rea, *Lepiota acutesquamosa* (Weimn.) Fr., *L. amianthina* (Scop.) Fr., *L. cristata* (A. & S.) Fr., *Tricholoma lascivum* (Fr.) Gillet, *T. aggregatum* (Schaeff.) Secr., *T. terreum* Fr., *T. melaleucum* (Pers.) Fr., *T. nudum* Fr., *Clitocybe clavipes* (Pers.) Fr., *C. cerussata* Fr., *Laccaria laccata* (Scop.) Cke., *L. amethystina* (Vaill.) Cke., *Mycena galopus* (Pers.) Fr., *M. polygramma* (Bull.) Fr., *M. inclinata* Fr., *M. gypsea* Fr., *Collybia radicata* (Rehl.) Berk., *C. platyphylla* (Pers.) Fr., *C. fusipes* (Bull.) Berk., *C. maculata* (A. & S.) Fr., *C. butyracea* (Bull.) Fr., *Marasmius peronatus* (Bolt.) Fr., *M. ceratopus* (Pers.) Quel., *M. dryophilus* (Bull.) Karst., *M. rotula* (Scop.) Fr., *Pleurotus ostreatus* (Jacq.) Fr., *P. cornucopiae* (Paulet) Pers., *Nyctalis asterophora* Fr., *Hygrophorus eburneus* (Bull.) Fr., *H. niveus* (Scop.) Fr., *Lactarius plumbeus* Fr. (*turpis* Fr.), *L. blennius* Fr., *L. pyrogalus* (Bull.) Fr., *L. quietus* Fr., *L. subdulcis* (Pers.) Fr., *Russula nigricans* Fr., *R. lepida* Fr., *R. rosea* Quel., *R. cyanoxantha* (Schaeff.) Fr., *R. foetens* Fr., *R. sororia* Fr., *R. emetica* (Schaeff.) Fr., *R. fellea* Fr., *R. atropurpurea* Krombh., *R. ochroleuca* Fr., *R. alutacea* (Pers.) Fr., *Cantharellus cibarius* Fr., *C. cinereus* (Pers.) Fr., *Craterellus cornucopioides* (Linn.) Fr., *Pluteus cervinus* (Schaeff.) Fr., *Hebeloma crustuliniforme* (Bull.) Fr., *Flammula sapinea* Fr., *Galera hypnorum* (Batsch.) Fr., *Crepidotus variabilis* (Pers.) Fr., *Cortinarius torvus* Fr. non Quel., *C. hemitrichus* (Pers.) Fr., *Inocybe fastigiata* (Schaeff.) Fr., *I. pyriodora* (Pers.) Fr., *I. geophylla* (Sow.) Fr. and var. *lilacina* Fr., *Paxillus involutus* (Batsch.) Fr., *Stropharia inuncta* Fr., *Hypholoma fasciculare* (Huds.) Fr., *H. hydrophilum* (Bull.) Fr., *Psathyrella gossypina* Bull. ex Fr., *P. gracilis* Fr., *Psalliota silvicola* (Vitt.) Sacc., *Coprinus comatus* (*Fl. Dan.*) Fr., *C. picaceus* (Bull.) Fr., *Boletus chrysenteron* (Bull.) Fr., *B. badius* Fr. including an almost black form, *B. scaber* (Bull.) Krombh., *Polyporus giganteus* Fr., *P. adustus* Fr., *P. betulinus* Fr., *Polystictus versicolor* Fr., *Daedalea quercina* (Linn.) Fr., *D. unicolor* (Bull.) Fr., *Stereum hirsutum* Pers., *S. sanguinolentum* Fr., *Thelephora laciniata* Pers., *Sparassis crispa* Fr., *Clavaria cinerea* Pers., *C. inaequalis* Mull., *Auricularia mesenterica* Pers., *Calocera cornea* Fr., *Sphaerobolus stellatus* Tode, *Lycoperdon atropurpureum* Vitt., *L. perlatum* Pers., *L. pyriforme* (Schaeff.) Pers., *Phallus impudicus* (Linn.) Pers., *Helvella crispa* Scop. ex Fr., *Lachnea hemispherica* (Wigg. ex Fr.) Gill., *Hypoxylon coccineum* Bull., *Xylaria hypoxylon* Grev. and *X. polymorpha* Grev.

LARVAE OF THE BRITISH LEPIDOPTERA NOT FIGURED BY BUCKLER

PART III

Compiled and illustrated by G. Haggett

Nonagria neurica Hübner (*edelsteni* Tutt). Sussex Wainscot.

Ever since the days of Tutt and bold controversy there has existed doubt amongst some British lepidopterists as to whether the *neurica* of Hübner was specifically distinct from *N. dissoluta* Treitschke and whether both insects inhabited Britain. In 1907 H. M. Edelsten clearly showed that the separation was warranted (*Ent. Rec.*, **19**: 1) and in the following year A. J. Wightman and E. P. Sharpe discovered *neurica* at Eastbourne, Sussex, where it continued to be found until the habitat was destroyed during the 1939-45 war. In the meantime Sir John Fryer had located *neurica* in reed beds along the Suffolk coastline and at the present time it is still well known from the Walberswick district.

Wightman has recently (1951, *Ent. Gaz.*, **2**: 243) given a summary of the early history of *neurica* in Britain together with an account of the life history, which follows closely the pattern of *N. dissoluta* and *N. geminipuncta* Haworth.

Owing to the confusion made between *neurica* and forms of *dissoluta*, many recorded occurrences of the former must be assigned to *dissoluta* and the Eastbourne and Suffolk coast marshes remain the only known centres of distribution. The *Cat. Lep. of Suffolk* (Memoirs of the Suffolk Naturalists' Society, 1937) lists a wide range of localities from Lakenheath to Lowestoft, but only Fryer's record for Southwold can be accepted. The Nantwich, Cheshire, record (1954, *Proc. Chester Nat. Hist. Sci.*, **1951/53**: 35) is most unlikely for more than any other of its group *neurica* essentially belongs to the relict Doggerland fauna and cannot be expected to have survived other than along the eastern and south-eastern seaboard marshes.

Larval habits. There is no simple means of identifying the type of feeding associated with each of the internal reed feeding Wainscots. *N. dissoluta* and *N. geminipuncta* both frequent stems of similar appearance to those inhabited by *neurica*, and *dissoluta* in particular adopts the same slender suppressed type of stem; *geminipuncta* is found in similar stems when very small but later attacks stems of all sizes including the tallest and largest. The mode of entry of these three species is similar in that they gain access by means of a minute hole bored towards the base of a section and feeding begins from that point upwards; they all choose a section about halfway up the stem, but so does *Arenostola phragmitidis* Hübn. However *phragmitidis* cuts out two or three deep rings at the bottom of its reed section which are easily recognised from without as dark circular scars. All internal feeders may cut rings of this nature if the foodplant is too vigorous but *phragmitidis* does it always in all sizes of stems and these in consequence fade the sooner. The *phragmitidis* larva when small eats right up into the lower part of the reed shoot and there excavates a spiral tunnel that is packed tightly with frass. The Nonagrias simply eat away the walls of their section of stem and then move to another stem for they rarely pass from one section to another above. The *neurica* larva in particular rests so closely to the bottom of its section that it is difficult to avoid cutting its last segments until this habit is known.

Owing to the common distribution of *phragmitidis* and *geminipuncta*, these species also occupy the very restricted habitat of *neurica*; this is more the nature of a reedy ditch than a marsh, but situations at the side, or locally within the expanse of a larger reed bed are frequented. Reeds standing in deep permanent water are not suitable but neither are well dried sites nor areas subject to cutting and burning. A sheltered situation is necessary with plenty of old dead reeds.

A. J. Wightman states that *neurica* can successfully pupate only within dead stems that, while large enough to contain the pupa, must be of soft, straw-like consistency, for if too tough the larva cannot gain entry. *N. geminipuncta* and *N. dissoluta* can manage with stronger stems, the former even in green reeds.

The larva of *neurica* is the earliest to feed up of these three Nonagrias, becoming fully grown by the third week of June, whereas both *geminipuncta* and *dissoluta* are still small at that date and reach full growth from the beginning of July.

Description of the last instar larva. Measures to 28 mm. in length, shape and build of *dissoluta*, the skin thinner, more shining and less wrinkled dorsally along the abdomen, the dorsal tubercles so minute as to be barely discernible to the naked eye and then only on the thorax and later abdominal rings. Thorax a little humped at rest, the abdomen very little swollen, with a wet appearance. Dorsal vessel not visible. The larva of uniform thickness with taper only at the later abdominal segments.

Colour variable depending on age, whether the larva has recently eaten or passed frass, wetness of stem and the amount of light received by the skin at the time of examination. Early in the last instar the larva is a silvery grey with translucent parts showing a pale yellowish green, while at full growth a more pinkish ochreous hue is present, inclined to dull yellow. The thorax is always some shade of dusky grey. The larva is shaded with pinky grey above the spiracles but it is quite clear and unmarked below. The darker dorsal area is divided by weakly marked dorsal and subdorsal stripes which are all narrow and run from the head to the anal plate, and which are even weaker along the thorax. The intersegmental skin divisions are not normally folded but as the larva contorts so the segmental divisions of the early abdominal rings fold each into a dark dusky arc still broken by the dorsal and subdorsal stripes, this being a very characteristic feature of the species.

True legs dark brown, prolegs ochreous grey, ringed in brown above the crochets, large and long as is usual in the genus. Head blackish brown, rather rounded but flattened in front, weakly lobed. Thoracic plate large, squared, pale brown marked with irregular dark mottling and in particular edged darkly at the posterior, the plate divided by a weak dorsal line and extended laterally at the anterior edge. Anal plate rather narrow, brown, densely freckled with black. Tubercles as described above, each of the posterior pair of trapezoidals that precedes the anal plate placed on a pear shaped patch of chitin. Weak, soft bristles arise from all warts and on the head, and are numerous on the anal plate. Spiracles oval, black, small except those on prothorax, linked by tracheae that show as a distinctive fine dark line, looking superficially like a pigmented spiracular stripe.

The larva is very different from *dissoluta* and *geminipuncta*, the opaque spiracular tracheae and the skin folding are most peculiar, and the presence of stripes is also quite unique amongst smaller members of the genus and the younger larva could instead be confused with young examples of *Arenostola brevilinea* Fenn. *N. dissoluta* is deeper flushed with delicate rosy pink along the dorsum, and *geminipuncta* has the prominent black spotting of the dorsal tubercles.

Figures—Pl. VI, figs. 6-8, all of last instar larvae, feeding in stems of Reed, *Phragmites communis* Trin. Walberswick, 14.vi.58.

Nonagria algae Esper (*cannae* Ochs.). Reed Wainscot.

Unlike its close ally *N. sparganii* Esp., the distribution of *N. algae* is still largely as it was known in Britain in the last century, but much more is recorded nowadays of its occurrence in the southern counties for it is now known to frequent fresh water ponds into Kent and Surrey as well as throughout mid-Sussex. In East Anglia it occurs in the Brandon area in addition to its better known haunts in the Broads district. According to Dr. de Worms (1957, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1956**: 93) it was found in the west of Ireland in 1953 and was bred from Dungeness, Kent, in 1952.

As with other Nonagrias this species is best collected in the late larval and particularly in the pupal stages and in consequence the life history and habits are better known than those of many internal feeders. Larval habits are well summarised in *Ent. Rec.*, **2**: 226 (1891). Wightman believes that the larva feeds at first in the tips of *Scirpus* shoots, leaving the last few inches withered, and finishes

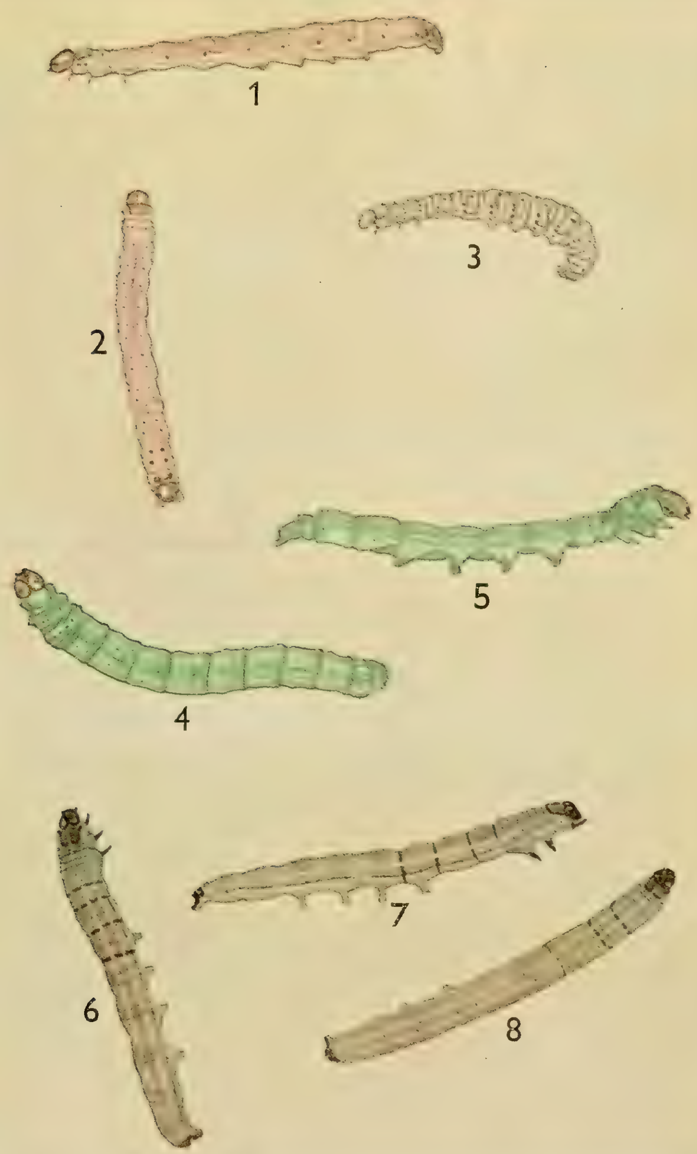


Fig. 1-3 *Coenobia rufa* Haw. (× $2\frac{1}{2}$ approx.)
Fig. 4-5 *Nonagria algae* Esp. (× $1\frac{1}{4}$ approx.)
Fig. 6-8 *Nonagria neurica* Hubn. (× $1\frac{1}{2}$ approx.)

growth in *Iris* and especially *Typha* and that, like *sparganii*, it pupates most successfully in stems amongst herbage rather back from the water's edge where it gets less attention from water fowl. The presence of the larva in any district can be detected by examining the tips of *Scirpus* in June.

Description of the last instar larva. Measures up to 50 mm. in length. Has the long and slender cylindrical build of *Nonagria* and the soft fleshy cuticle common to many internal dwellers. Thoracic segments slightly more swollen than the rest, also better differentiated, heavily wrinkled and fleshy at the sides. Abdominal segments longer than broad with raised lateral flange.

Colour pale emerald green inclined to pinkish at the smoothest surfaces, darker green at the segmental folds and dorsal area, also at the thorax and anal extremity. Dorsal vessel fine, broken, dark green. A pale narrow lateral line and another more weakly expressed pale line along the spiracles. Head globular, smooth and shining, set with fine golden hairs, yellow-brown with a patch of brown freckling to each side and a central patch where the lobes divide above. Spiracles narrowly oval, white centred, faintly ringed in black, first and last pairs much larger than the rest. Trapezoidal and lateral warts tiny, black, each with a very fine short hair. Of the transverse row of dorsal warts on the second and third thoracic rings, the wart second from centre on each side is much the larger. Prothoracic plate semicircular but rather squared posteriorly, weakly chitinised, appearing a waxen olive green; anal plate similar but thickly studded with sturdy black spines. True legs pale brown, prolegs and anal claspers green, fleshy, but well equipped with sturdy crochets.

The only distinction I have found between the larvae of *algae* and *sparganii* is that the head of *sparganii* may lack the freckling present on the other species, but I am unable to say if this is constant.

Figures—Pl. VI, figs. 4-5, last instar, feeding in *Typha latifolia* L. Mid-Sussex, 14.vii.56. From A. J. Wightman.

Coenobia rufa Haworth. Rufous Wainscot.

The life history of this species was made known in Britain in 1909 when H. M. Edelsten described the larva and its habits (*Ent. Rec.*, **21**: 108-110) from Norfolk Broads material, giving also details of the egg, pupa and the remarkable method of egg laying.

The following account is extracted from Mr. Edelsten's work. "The young larvae remain in the old stems, making galleries in the pith towards the root, and keep more or less together. They appear to hibernate in these old stems, and early in the spring bite their way out, when each one enters a growing stem. The larvae appear to feed in several stems. They bite an oval-shaped hole about a quarter of the way up the stem, and, entering, feed head downwards, ejecting frass through the hole; on reaching the root they eat their way out, and enter another stem. The infested stems quickly turn yellowish-green and wither. The ejected frass can be seen on the moss, etc., round the tufts of rushes, and a little searching reveals the infested stem. When about to pupate the larva enters an old stem low down just where the sheath ends, beneath the mossy surface of the fen, eats out a chamber, leaving a thin skin over its emergence hole, which is just on the fen surface, and pupates head upwards. They are full fed from the end of May to the middle of June''.

In some localities *Juncus effusus* L. is eaten instead of the better known foodplant *J. articulatus* L. (*lamprocarpus* Ehrh.).

The species has a wide distribution throughout Britain.

Description of the last instar larva. Measures up to 22 mm. in length. Shape slender and cylindrical with flattened, wrinkled thoracic rings and a small globular head. The skin smooth and shining with short fine hairs arising from dark brown or blackish small tubercles. Colour a pale pinkish white, dirty whitish ventrally, with darker pink shading across the dorsum to the spiracles. The dorsal vessel of the last thoracic and first four abdominal rings showing darker through the thin skin. A fine sinuous pale line joins the spiracles on all abdominal segments. Dorsal line pale, finely centred with darker. Head yellow-brown, shining, with numerous fine soft hairs, the mouthparts darker. Prothoracic plate large but weakly chitinised, shining pale brown, anal plate large, dark grey-brown, smooth, both plates with warts and tiny hairs. True legs pale brown, prolegs and claspers dirty white, small, weak, placed well to the posterior of their segment. The larva is broadest at the later abdominal rings and gradually tapers to the small flattened thorax.

Figures—Pl. VI, figs. 1-2, last instar, fig. 3, younger larva, feeding in *Juncus effusus* L. Pulborough, Sussex, 11.v.52.

Hydrillula palustris Hübner. The Marsh Moth.

Until 1944 this species was regarded as one of the scarcest and most secretive of British noctuids; it was certainly one of the least understood and the life history in Britain quite unknown although in 1930 Raebel had given an account of it on the continent. The publication in 1944 (*Entom.*, **77**: 49-54 and 65-72) by H. M. Edelsten, J. C. F. Fryer and A. Robinson of their discoveries and experiences with *palustris* over many years first opened the way for other investigators to find that the moth was locally more numerous and rather better distributed than had formerly been supposed. In that paper the authors gave a comprehensive survey and history of *palustris* in Britain and discussed the curious early records. For many years the moth had remained an extremely rare fenland capture with a few scattered records from other places and first Wicken and then Chippenham fens became regarded as its headquarters, while today it is more often taken at Woodwalton; it is also well known from similar haunts in adjacent parts of Huntingdonshire, Norfolk and Suffolk. By 1957 larvae were being found in numbers at Woodwalton in favourable seasons by means of sieving prepared heaps of fen litter until the end of September.

The habits and life history are thoroughly discussed and there are photographs of the larva and other stages on plates 2 and 3 (*Entom.*, loc. cit.).

Description of the last instar larva. A description of the mature larva is given by the above mentioned authors as follows:

"Head black or very dark brown, small in relation to size of larva; on disturbance completely withdrawn under thorax. Legs pale brown. Ground-colour grey, a whitish dorsal line on segments 1-8, which is hardly continuous when the larva is extended owing to the fact that on segments 4 to 8 the streak is not linear, but is narrowed to a point in front and is widened behind. The dorsal line is hardly visible on segment 9 and absent on the anal segment. There is a whitish subdorsal line, bordered with dark grey or brown, in some specimens not continuous but consisting of white marks which do not quite reach the anterior border of each segment. The whole dorsal area is mottled with dark grey or dark brownish-grey, and mottling taking the form of chevrons, with the narrow end pointing backwards. At the anterior end of the arms of each chevron there is a dark grey or black suffusion extending to the ventral sides of the subdorsal line, very conspicuous in some larvae but less marked in darker varieties. The colouring on the dorsal surface is variable, sometimes grey, but usually with a tinge of brown. Posterior to each dark chevron mark is a light area on each side of the larva, sometimes very evident, but obscure in dark varieties. Setigerous tubercles small, pale brown in colour. Hairs pale brown, curved. There is narrow grey spiracular line. The spiracles are deep black, with the aperture inconspicuous. When disturbed the larva contracts and is then somewhat slug-shaped, with head completely retracted and the lateral integument extended sideways, somewhat suggesting a narrow flap along each side of the larvae. Length 23-25 mm."

The ground colour of this larva is quite variable, ranging from a soft dove-grey touched with lilac bloom to muddy browns with a most lovely rosy purplish sheen. Some examples have the open spaces along the dorsum decidedly ochreous. The subdorsal blotches may be very heavily developed to suffuse across the fine subdorsal line to the patch below it, while in the opposite extreme they are rarely reduced to the slightest short streaks. In all its forms however the larva of *H. palustris* is always to be distinguished from allied larvae by its misty bloom of whitish-lilac; the yellower forms without heavy blotches remind me more of young *Rusina umbratica* Goeze than any other larva.

Means of distinguishing this larva from that of *Caradrina morpheus* Hufn. are given in 1944, *Entom.*, **77**: 68-69. In addition to these,

R. L. E. Ford (1947, *Entom.*, **80**: 13) pointed out that the thin black lines that edge the pale dorsal stripe are conspicuous in *palustris* but quite lacking in *morpheus*.

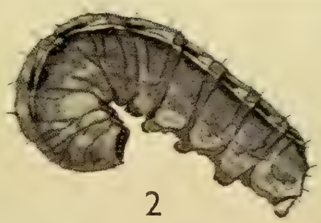
Figures—Pl. VII, figs. 1-3, last instar, on *Filipendula ulmaria* (L.) Maxim. Woodwalton Fen, 30.viii.57.

Caradrina ambigua Schiffermüller. Vine's Rustic.

At first sight the British history of this Caradrinid would appear similar to that of *Leucania l-album* L. in that it has colonised the southern shores of Britain but it has not extended its range further north than Surrey and Essex and that only in S.E. England. Its range is certainly much further east than that of the Wainscot but it has been here for a much longer time, having been recognised first in 1879, and it is likely that it had been present a long while before that but had escaped detection. Despite the general account given of it by South (1907, *Moths of the Brit. Isles*, series 1, p. 318) the moth was numerous at that time only in South Devon, and it remained uncommon elsewhere until recently. The tables (Table E) compiled by South Eastern Union of Scientific Societies of migration records since 1930 show only the following reported occurrences:—1932 (1), 1934 (7), 1935 (7), 1936 (2), 1938 (4) and no records until 1945 after which larger numbers appeared almost annually; the absence of records from 1939-45 must be attributed to war-time conditions but the remarkable boom in numbers since is in marked contrast to any previous period. And the moth is now more often seen in May and June although July-September remain the peak months of emergence. The range still extends throughout the southern coastline from Cornwall to South Essex but the moth may be abundant, and is of regular occurrence in both broods, only in the Greater London area and its immediate environs into Surrey. In recent years it has been found to be common and double brooded in the Scilly Isles. R. F. Bretherton (1957, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1955**: 123)) says the species was unknown in N.W. Surrey before 1949 although it is now common. The only occurrence from elsewhere in Britain seems to be my own record of thirty moths at ragwort blossom at Mundford, Norfolk, on 23.vii.50.

I know of no record of finding the wild larva. Larvae are frequently reared from autumn taken moths and brought to maturity during the winter. Early in life the little larva is yellowish and by the third instar it changes colour to dull grey with a whitish dorsal stripe and finer subdorsals and weak spiracular marks; it has very sturdy curved bristles arising from prominent tubercles of which the anterior trapezoidals are especially large. Low growing plants such as dandelion, knotgrass and chickweed are eaten, and Wightman once had a brood that readily ate the dead pupae of other species that had failed to produce moths.

Description of last instar larva. At full growth measures up to 30 mm. in length. Has the typical plump, fleshy Caradrinid shape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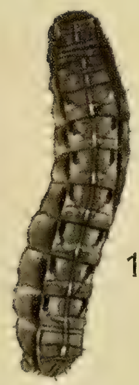
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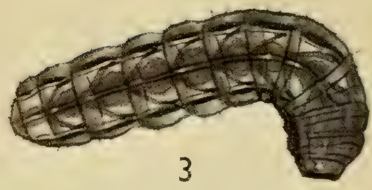
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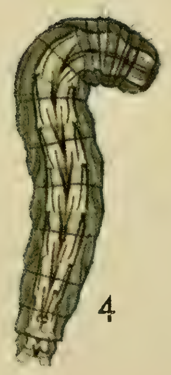
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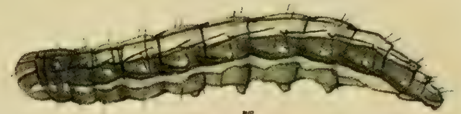
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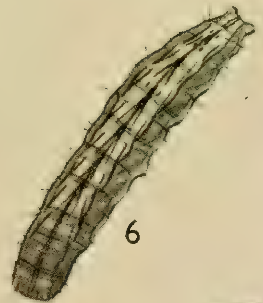
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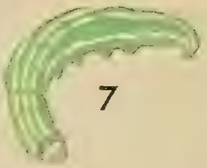
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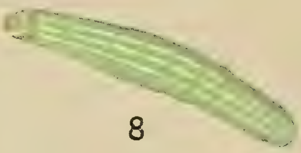
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Fig. 1-3 *Hydrillula palustris* Hubn. (× 2 approx.)
Fig. 4-6 *Caradrina ambigua* Schiff. (× 2 approx.)
Fig. 7-8 *Acosmetia caliginosa* Hubn. (× 1¼ approx.)

and dull colouration. This is a rather flattened larva with considerable taper from the seventh abdominal segment, the head held well into the thorax when at rest.

Along the broad dorsum the larva is a pale straw-ochreous, flushed greyish on the posterior half of the abdominal rings and suffused with dark brown on the thorax; there is some vandyke shading about the dorsal line. Laterally the larva is greyish brown, inclined more to grey at the lower edge where it meets the broad wavy subspiracular band, which is pale pinky grey. Beneath the larva is nondescript greyish.

The pattern consists of a series of seven abdominal pairs of delicate arms that extend and open forwards from the centre of each intersegmental fold, where they commence as a dusky pair of short streaks, becoming finer and etched brown as they reach the anterior trapezoidal tubercles. On the thorax the only markings are the pair of dark lines that narrowly indicate the dorsal stripe. On the anal segment the dorsal stripe becomes a darkly suffused streak that extends on to and bisects the anal plate. Along the division of the pale dorsal area from the dark lateral band there is a series of finely etched dark brown lines that begin at the posterior trapezoidal wart of one segment but which edge slightly inwards on the following segment and thus diverge a little from the next line which arises as the other ends. On the lateral band of the abdominal rings there is a weakly marked dark streak extended forward from the spiracle, giving greater relief to the prominent yellow or orange patch that adjoins the spiracular wart.

Spiracles black, oval, placed immediately above the pale subspiracular band. Warts small, dark, placed each on a raised pale base, bearing a curved short bristle. Prothoracic plate broad, dark brown and freckled, crossed by a clearly marked white dorsal stripe bounded by darker lines and also by weaker subdorsals.

Head rounded but flat in front, blackish brown mottled, the clypeus paler and marked with a central vertical dark streak. Mouthparts reddish brown. True legs brown, prolegs greyish and small, almost hidden when at rest, equipped with very efficient crochets as are the larger fleshy anal claspers.

Figures—Pl. VII, figs. 4-6, all last instar, eleven weeks old, reared on dandelion, ex ovis, Arundel, Sussex, 30.xi.57.

Acosmetia caliginosa Hübner. Reddish Buff.

This species has not been recorded from Dorset for many years but it continues to flourish in its restricted haunts in South Hants while on the Isle of Wight it has been found away from the damp woods of Parkhurst although still in the vicinity of *Serratula tinctoria* L. (Saw-wort).

A full account of the life history is given by Cockayne and Hawkins (1933, *Entom.*, **66**: 1, 36, 52) with the description of the larva which is repeated below. Sometimes the insect passes two winters as a pupa. Dr. de Worms and Capt. Jackson have found that the moth flies frequently in late May as well as in the months of June and July.

Both Stokoe (1948, *The Caterpillars of British Moths, first series*, p. 350) and Allan (1949, *Larval Foodplants*, 70) give *Poterium sanguisorba* L. (Salad Burnet) as a foodplant in addition to *Serratula tinctoria* L., apparently on continental evidence.

Description of the last instar larva. The following details are given by Cockayne and Hawkins.

"Colour 'calliste green' (Ridgway) with yellow transverse lines at junctions of somites owing to overlap of skin. Head 'light yellow-green' (Ridgway). Ocelli black. Setae small and black, each in a pale yellow circular area. Clypeus or front (Ripley) almost an equilateral triangle in shape . . . Antennae tinged with pale pink. Labrum opaque porcelain white. Distal segment of palpi pale pink. Mandibles with very dark brown teeth. Prothoracic plate, including its setae, as in previous instar.

"Length 29 mm. Head held flat on leaf so as to show the mouth parts. Thorax strongly contracted, wrinkled, and somewhat flattened so that it is both narrower and less deep than the abdomen. Abdomen nearly cylindrical, with very slight narrowing at the divisions between the somites. Ninth abdominal somite very slightly raised, 10th much less in depth so that the 9th forms a fold that in part overlaps it. Legs tinged with pale pink, held pointed obliquely forwards with a space between each pair and between the 1st pair and the head. First four pairs of prolegs of equal size and not visible from above as in previous instars, green with foot and tip pale pink, and the crochets numbering 18, 20, 24 and 24 on the 1st, 2nd, 3rd and 4th prolegs respectively, blackish brown. Anal prolegs when larva is at rest stretched out directly backwards and visible from above. Colour green with pink foot and bearing 20 blackish brown crochets. The pattern consists of a rather narrow, pale yellow dorsal line with narrow edging of dark green; subdorsal line of same width and colour and with narrow edging of dark green. The dorsal line reaches the tip of the anal flap, but the subdorsals curve inwards, and end about two-thirds of the way along the flap. Anal plate rounded, pale green, with a narrow pale yellow border. Spiracular line wider than dorsal, pale yellow with a distinct curve downwards posterior to spiracle on 1st abdominal and a less pronounced one in the same position on the 3rd thoracic. It is continued along the outer aspect of the anal proleg, ending at the foot. There is an extremely narrow subspiracular pale yellow line, beginning just behind the leg on the 3rd thoracic and ending at the base of the anal proleg. On each of the first six abdominal somites it forms a small downward loop nearly encircling a seta, but on later somites runs just below the level of this seta, the remaining two of the three lowest lateral setae lying below it. On abdominal somites 2, 3, 4, 5 and 6 a broader pale yellow stripe begins at anterior end of somite and curves down to base of proleg or corresponding point . . . . Spiracles: oval, white with narrow black ring. Prothoracic and 8th abdominal about twice the size of the others. The 1st thoracic lies above the spiracular line, the 1st, 2nd and 3rd abdominal spiracles in it, the 4th abdominal also in it but near its lower border, the 5th and 6th below it, the 7th in it and the 8th above it, but with the yellow colour of the line spreading up in front and behind and nearly surrounding it . . . . For a few hours before it goes into earth for pupation the green becomes paler, the markings less distinct, and the dorsal vessel is visible as a dark line. In some larvae the dorsal surface of the anterior half of the larva becomes tinged with pink."

In this paper the authors comment on the fact that the larva of *A. caliginosa* has no obvious affinity with *Caradrina* or with *Petilampa* and that *palustris* is best retained alone in *Hydrillula*.

Figures—Pl. VII, figs. 7-8, both last instar, reared on *Serratula tinctoria* L. by A. J. Wightman, ex ovis, Tichfield, Hants. 10.vii.50.

EXPERIMENTAL VARIATION IN ARICIA AGESTIS (SCHIFF.)

By F. V. L. Jarvis, B.Sc., F.R.E.S.

Arising from experimental work on *Aricia agestis* (Schiff.), interesting results on imaginal pattern change were obtained by submitting newly-formed pupae to abnormal temperatures. These departures from the type so closely resembled many lycaenid aberrations taken occasionally in the field that it was thought worth while to describe the experimental conditions in some detail. In Britain, apart from the characteristics of s.sp. *artaxerxes* F. and the Durham coastal race, *A. agestis* rarely shows much variation from normal, but it is probable that such species as *Lysandra coridon* (Poda), *Polyommatus icarus* (Rott.) and *Lycaena phlaeas* (L.) might exhibit considerable changes in the same conditions that were applied to *A. agestis*. The suggestion is put forward as a potential line of research.

With a distribution covering suitable areas in the whole Palaearctic region, *A. agestis* is probably an ancient species. It is not migratory. It tends to be localised and therefore its spread over Europe and Asia must have occupied a considerable period, possibly covering the whole of the Pleistocene. In Europe there appear to be several races, both lowland and alpine, but in Britain a unique subspecies *artaxerxes* F. occurs in Scotland and nowhere else in the whole distribution. Furthermore, on the Durham coast there is an extremely interesting race (*salmacis* Steph.) which seems to have arisen as an overlap between *artaxerxes* and the univoltine northern English race during a recent glaciation.

Elsewhere I have described recent work on *A. agestis* from which it appears that the British races fall into two groups:—

(1) Univoltines, comprising:

(i) Forms occurring in Derbyshire, Yorkshire, Durham, North Wales, Lancashire and Westmorland. The main characteristics are a reduction in the number of orange marginal lunules on the upper surfaces of the wings, and a tendency to small black pupils of the undersurface white spots, particularly in the eastern half of the range. In many of the females there is a more or less complete circling of the upper surface forewing discoidal spot with white scales (ab. *albiannulata* Harr.).

(ii) s.sp. *artaxerxes* (Scotland), in which the forewing discoidal spot on the upper surface is white. In some specimens a small white discoidal spot appears on the hindwings. The underside white spots are either without black pupils or retain minute traces of black centres.

(iii) The Durham coastal race which produces about 5% of *artaxerxes* forms and several unique aberrations found only in this narrow strip of territory.

(2) BIVOLTINES.

A homogeneous race widely scattered over Southern England as far north as East Anglia and South Wales. This is the typical *agestis* similar in appearance to lowland forms in Western Europe. There is an area running from East to West through the Midlands for which little reliable data is available so that at present it appears that there is no intermingling between the northern univoltines and the southern bivoltines. Ova from late June Royston females produce a small percentage of univoltines from which it may be inferred that at some time in the past the two races have met and interbred.

Up to the present it has not been possible to induce northern larvae reared in the South of England to depart from their univoltine character which indicates that univoltinism is an integral part of the genetic formula. The slightly higher average temperatures of the south will not suspend the larval diapause, but a recent experiment, to be described later, on southern *agestis* suggests that the daily hours of daylight to which the larva is subjected from the moment of hatching play an important part in determining the onset of diapause.

In calculating the hours of daylight one hour is added to the period between sunrise and sunset for the locality and date.

At Hawick (Scotland) *artaxerxes* larvae hatch at the end of July in 18·6 hours of daylight and pass into diapause about mid-September when the figure has fallen to 13·6 hours. The corresponding figures for Sunderland (Co. Durham) are 18·2 hours (end of July) and 13·4 hours (mid-September).

By contrast on the south coast *agestis* larvae from the second emergence are hatched in 15·0 hours of daylight (mid-August) and pass into diapause in mid-October (11·6 hours).

It was found that the larval diapause in southern *agestis* could be completely suspended and *all* the ova in a batch brought to maturity as a third emergence late in October by subjecting the ova and larvae throughout their growth to 16·5 hours of light in each twenty-four hours. It could be inferred from this experiment that the diapause threshold for southern *agestis* is 15 hours. Above this figure in June, July and early August the larvae are unlikely to pass into diapause. It has not yet been tested but possibly northern larvae, if subjected to 19 hours of light, would complete development without diapause. It therefore seems very unlikely that northern larvae when brought south into a zone of less daylight would grow continuously if the above assumption is correct. It is possible that the linkage of diapause with long hours of daylight represents an ancient northern ancestry. On the other hand the lower southern diapause threshold could represent an equally long sojourn many degrees further south.

The occurrence of a small percentage of univoltine specimens in the Royston population has already been mentioned. It is worth analysing the data in terms of daylight hours.

In 1957 a Royston female deposited 47 ova between 20th and 23rd June.

Date of hatching	*Daylight hours (approx.)*	*Larvae entering diapause*	*Daylight hours (approx.)*
1st-2nd July	17·6	Two in instar IV = 4·2% of ova, about 15th August	15·5

In 1958 a Royston female deposited 36 ova early in July.

Date of hatching	*Daylight hours*	*Larvae entering diapause*	*Daylight hours*
14th-15th July	17·2	Eight in instar IV = 22·2% of ova, about 25th August	14·8

In each brood the majority of the larvae completed development to give second emergences in late August and early September. All larvae were in the same environment so it would appear that the small univoltine percentage were reacting to a higher light threshold than the bivoltines, resembling in this respect the northern races.

It is not feasible, in the absence of fossil remains or genetic data from the cross pairing of the British races, to advance with any degree of certainty theories of origin, but it seems likely that the present distribution of univoltine and bivoltine forms of *A. agestis* can be traced to the population movements in the last two glaciations

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KEY TO PLATE VIII.

The rows are read horizontally.

Row 1. ♂. ♀. ♂. ♀. Controls reared from Royston ova at 60-65° F. August 1957.

Row 2. ♂. ♀. ♂. ♀. Wild series of Northern univoltines. Nos. 1, 3 and 4 from Durham Coast, No. 2 from Witherslack.

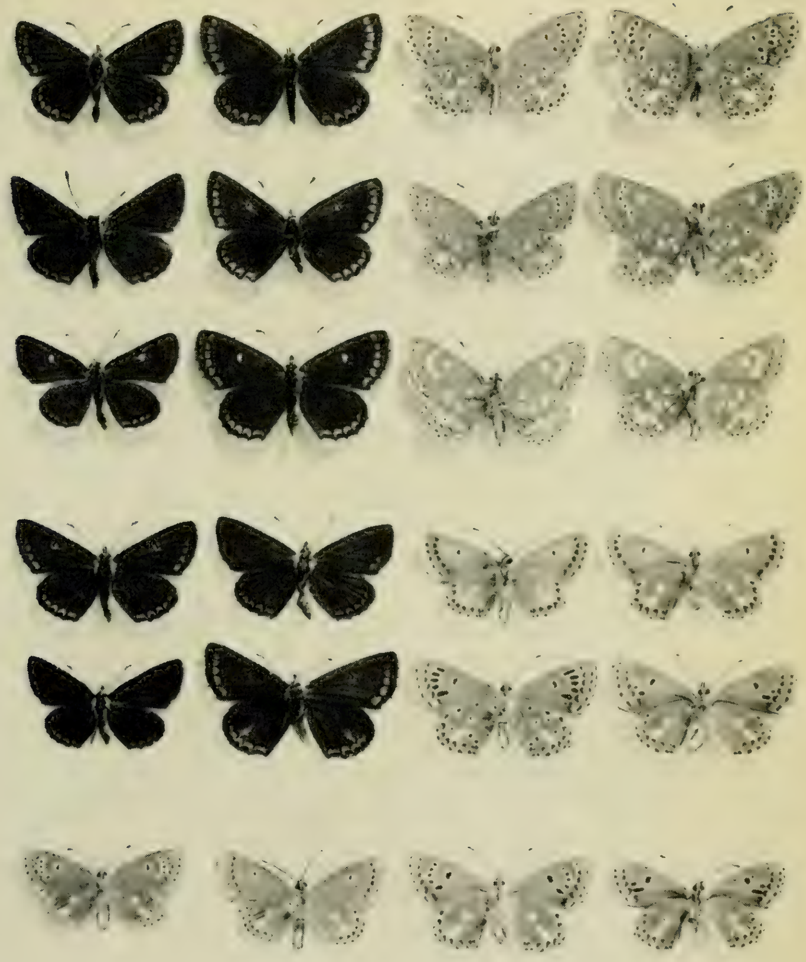
Row 3. ♂. ♀. ♂. ♀. Series of s.sp. *artaxerxes* reared in Sussex from Hawick ova. May 1956.

The lower three rows are from pupae chilled initially to 34° F. for periods ranging from six to twenty days and then developed at 60-65° F.

Row 4. No. 1, ♂, Winchester. No. 2, ♀, Royston. No. 3, ♂, Royston. No. 4, ♀, Royston.

Row 5. No. 1, ♂, Royston. No. 2, ♀, Royston. No. 3, ♀, Royston. No. 4, ♀, Royston.

Row 6. No. 1, ♂, Winchester. No. 2, ♂, Winchester. No. 3, ♀, Royston. No. 4, ♀, Royston.



of the Pleistocene period. It is certain that during the severe penultimate glaciation, when permanent ice extended to the Midland region of England, that most insect life retreated southward into the Continent except for a possible fringe on the tundra area of the Channel Gulf, England being still connected to France at this period. Access to Ireland would appear to have been impossible as it is considered that the land bridge to Scotland disappeared much earlier.

We can assume that any ancestral form of *A. agestis* would have followed this southward path. With the lessening of climatic severity in the ensuing interglacial, *agestis* would have moved eventually back to the north of Britain and evolved into a univoltine race, possibly of an *albiannulata* Harr. type. With the onset of the final glaciation, which was of less severity with permanent ice only on high land in the north, there would have been some southward movement but it is possible that some of the population remained in isolation in Scotland, and from this group the present s.sp. *artaxerxes* evolved. Minor drifts during the fluctuations associated with the decline of the cold could account for the coastal overlaps on the Durham coastline. In the final recession of the cold, which began about 11,000 years ago, bivoltine forms from France spread into England but do not appear to have moved further north than the Midlands. With the breaking of the land connection with the Continent some 3,000 years later, the isolation of British *agestis* was complete.

With this theory as background, a number of experiments on the pupae of southern *agestis* were performed to find out whether prolonged periods of low temperature would produce any of the pattern characteristics of the northern races. It was not expected that genes would be permanently altered or new genes formed by mutation but it was considered possible that the relative potency of some genes could be affected by unusual conditions. If the southern gene balance could be influenced by cold to produce some northern pattern forms, there could be a pointer to the climatic conditions which over a long period of time had fixed the characters of s.sp. *artaxerxes* and the north British races.

The first experiments in 1956 and 1957 were carried out with small amounts of material reared from ova deposited by females of *A. agestis* from Winchester and Royston. Control insects were maintained throughout at 60-65° F. to give a standard for comparison. It was found that Instar V larvae kept for alternate periods of 12 hours at 34° F. and 65° F. showed no pattern change when the pupae were developed at 65° F. Therefore, small groups of pupae were treated in the following manner:

(A) Newly-formed pupae were kept at 34° F. for periods up to 20 days and were then allowed to develop at 60-65° F.

(B) Pupae half way through development were chilled to 34° F. for 20 days and then returned to 65° F.

(C) Pupae showing signs of wing development were chilled to 34° F. for 20 days and then emerged at 65° F.

(D) Adult larvae and the resulting pupae were kept at 50-55° F. until near emergence and were then warmed to 60-65° F. for emergence.

GROUP (A)

Eight pupae were used. All imagines showed reduction in size of the black spots on the hindwing undersides. Four males had elongated black sub-marginal spots on the forewing undersides. There was a varying degree of hindwing obsolescence. Two males possessed a few white scales around the discoidal spots on the upperside forewings. One male was melanic with violet scales on the wing bases (upper surfaces), and with grey shading into the white underside spots. All undersides were deep grey in the males and greyish-brown in the females.

GROUP (B)

The only change was a slight scale thinning. There was no pattern change. Three pupae tested.

GROUP (C)

There was no difference from the controls at 65° F.

GROUP (D)

Only two Winchester pupae were available. Both imagines were males and showed a marked *albiannulata* forewing discoidal spot (upper surface)—a rare condition in this sex. One was ab. *caeca* Blach. on the underside and the other showed considerable obsolescence.

In Groups (A) and (D) orange lunules on the upper surfaces were reduced in extent (both sexes) in comparison with controls. This resembles the northern *allous* Hübn. tendency. With all the tested insects showing the same trends of variation it seems reasonable to suggest that chilling at the commencement of pupation allows certain environment controlled genes to become operative, producing in the southern *agestis* some of the characteristics of the northern races. Also the process definitely causes considerable obsolescence. Chilled larvae plus chilled pupae accentuated these effects.

Although pupae (Group C) which were chilled in their final stages produced no pattern change if they had been reared up to that point at 60-65° F., it was found in the autumn of 1958 that the effect of chilling at the commencement of pupation was accentuated by a further slight chilling (50-55° F.) in the later stages. Conversely the effect of initial chilling was largely neutralised by emerging the pupae at 70-75° F.

In the later experiments periods of only 5 days at 34° F. at the commencement of pupation produced marked obsolescence. The important point is that *all* pupae treated as (A) and (D) produced abnormal imagines whilst *all* the controls were normal. Four separate broods, comprising 57 insects, were used so that the possibility of genetic variation could be ruled out.

It seems highly probable that obsolescent variations can be formed in natural conditions if the pupae are formed towards evening on soil that is almost devoid of vegetation cover. During a cool period in late spring or summer the night minimum often falls to 42-45° F., with a ground minimum of 37-40° F. If this took place on several successive nights sufficient chilling to produce pattern interference would result. The inference is that obsolescent and spot alteration aberration are more probably environmental than genetic. Normally pupation takes place under a sufficient cover of grass and low plants to prevent excessive radiation of heat at night, but the occasional pupa can become exposed by the browsing of a rabbit or other accidental circumstance.

The lower three horizontal rows on Plate I illustrate a selection of the abnormal insects produced in the foregoing experiments. For comparison, in the top row, are four controls reared from Royston ova at a uniform temperature of 60-65° F. All the controls were similar and showed no deviation from the accepted southern type. The second row is a wild series of the univoltine race from northern England. The third row is a series of s.sp. *artaxerxes* reared in Sussex from Hawick ova. Apart from the winter diapause, the uniform temperature of 60-65° F. was maintained throughout with *artaxerxes*. It will be observed that there is no difference from wild specimens.

Late in 1958 it was possible to perform an experiment which not only confirmed the earlier results, but provided valuable additional information. On 27th August I took a female *agestis* near Arundel (Sussex), and over the next four days obtained 84 ova on *Helianthemum chamaecistus* Mill. (*vulgare* Gaertn.) (Common Rockrose), and *Geranium sanguineum* L. (Bloody Cranesbill). The ova were separated into two groups.

Group I (44 ova) was kept out of doors in a gauze cage protected from direct sunlight. They were hatched on growing plants of *H. chamaecistus* (*vulgare*) about 11th September. Growth was slow; the moult into Instar II took place in the last week in September. Many of the larvae died during October, but eventually seven survivors entered diapause at the end of October. Six were in Instar II and one had reached Instar III. Outdoor temperatures were not low over this period, falling from an average of 58° F. early in September to 54° F. in late October.

Group II (40 ova) were kept indoors at an average temperature of 62° F. In previous years it had been observed that larvae resulting from August females would pass into diapause at this temperature. There was one exception in 1957 when a partial third emergence was obtained. The eggs in this instance had been laid in the first week in August when there were over 16 hours of daylight. By the first week in September the daylight value had fallen to 14·3 hours. Therefore it was decided to maintain 16·5 hours of light throughout the life of this group. The pots of *H. chamaecistus* (*vulgare*) and *G. sanguineum* were kept close to a window (out of direct sunlight) and from 7 p.m. to 11 p.m. were illuminated by a 40 watt bulb from a distance of nine inches.

Hatching commenced on 5th September. Growth was uniform and all 40 larvae pupated between 11th October and 23rd October. There is no doubt in my mind that the maintenance of the high summer value of light suspended larval diapause to give 100 per cent. third emergence.

The pupae were divided into three batches:—

(a) Five larvae ready for pupation were placed in a temperature of 90-95° F. until emergence. The pupal stage occupied six to seven days.

(b) Seventeen pupae were kept as controls at 60-65° F.

(c) Eighteen pupae *immediately after pupation* were placed in 38° F. for 20 days. This temperature was chosen as it would be nearer to ground minima in cold summer weather than the figure of 34° F. used previously. After 20 days the pupae were allowed to complete development at 60-65° F.

Group (b) emerged from 20th-26th October and Group (c) in the latter half of November.

Proportions of sexes:

	Males	Females	
(a)	2	3	(Two insects slightly deformed)
(b)	11	6	All perfect
(c)	7	11	All perfect
	—	—	
	20	20	

Plate II illustrates the types of variation obtained in this experiment. An important observation is that all members of a group were very consistent in pattern tendency according to the group. Therefore the temperature treatment of the pupa was the governing factor

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KEY TO PLATE IX.

The rows are read horizontally.

These imagines are all from the Arundel experiment described in the text.

Row 1. ♂. ♀. ♂. ♀. Controls reared throughout at 60-65° F.

Row 2. ♂. ♀. ♀. Adult larvae and pupae maintained at 90-95° F.

The remaining rows are from pupae kept initially at 38° F. and then developed at 60-65° F.

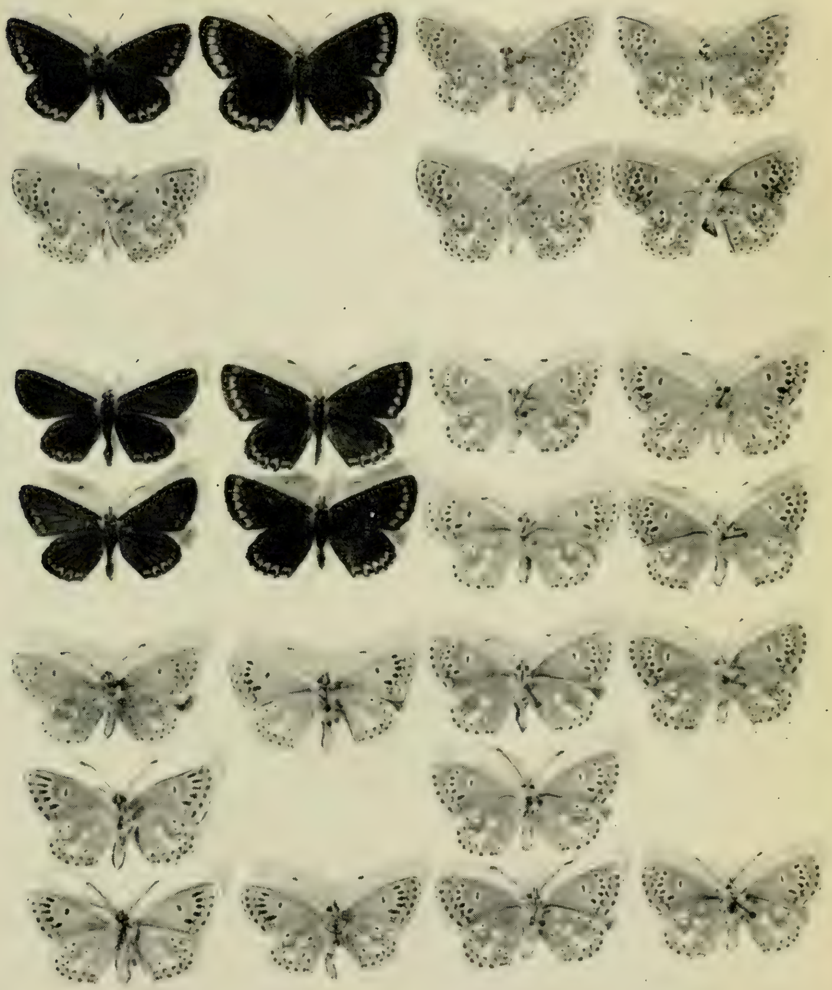
Row 3. ♂. ♀. ♀. ♀.

Row 4. ♂. ♀. ♀. ♀.

Row 5. ♂. ♂. ♀. ♀.

Row 6. ♂. ♀.

Row 7. ♂. ♂. ♀. ♀.



in influencing departure from normal. The first horizontal row consists of two males and two females from pupae maintained at 62° F. The second row contains one male and two females from the pupae at 90-95° F. The remaining illustrations are from pupae kept initially at 38° F. A tabular method of comparison has been used as the simplest way of comparing the variations involved.

Characteristic	*Controls at 62° F.*	*Pupae at 90-95° F.*	*Pupae at 38° F.*
	Group (B)	Group (A)	Group (C)
Uppersides: Males			
Ground colour	Dark brown	Dark brown	Very dark brown to black
Discoidal spot	Black (no white scales)	Black (no white scales)	Black. One specimen with a few white scales
Orange lunules	Forewings 4-6 Hindwings 5-6	Forewings 6 Hindwings 5-6	Forewings 0-3 Hindwings 3-4 Reduced in size
Females			
Ground colour	Dark brown	Bright brown	Dark brown
Discoidal spot (female parent showed a few white scales)	Black: 2 out of 6 showed white scaling	Black (no white scaling)	Black: 5 out of 11 with considerable white scaling
Orange lunules	Both wings 6	Both wings 6	Forewings. 6, reduced in size with the apical spot much reduced in some specimens Hindwings. 5, reduced in size
Undersides: Males			
Ground colour	Grey with a tinge of brown on hindwing	Brownish grey: mainly brown on hindwings	Grey or leaden colour. 2 specimens only with trace of brown on hindwings
Spot pattern	Normal with moderately large black pupils	Black pupils larger than in (b)	Forewings. Tendency in all specimens to elongation and enlargement of submarginal black spots Hindwings. Considerable obsolescence with much reduced black pupils

Females			
Ground colour	Grey brown forewings, brown hindwings	Deep yellow-brown on all wings	Grey on forewings : grey - brown on hindwings
Spot pattern	Normal with moderately large black pupils	Black pupils large with *cream* surrounds	Forewings. Elongation (not as extreme as in males) and enlargement of submarginal black spots Hindwings. Considerable obsolescence. Elongation and reduction in size of black pupils

DIGEST OF RESULTS

High pupal temperature caused a brightening of the ground colour towards yellow-brown with an increase in size of the underside black spots.

Low pupal temperature darkens the upper surface and moves the underside colour towards deep grey. There is a reduction of the upper side orange lunules and white scaling around the discoidal spot is accentuated. On the under surface there is general obsolescence on the hindwings and spot elongation and distal displacement on the forewings. Except for the latter characteristics, several of the tendencies of the northern English race have been produced in this group. Comparison with the earlier experiments suggest that the nearer to 32° F. the pupae are kept the greater is the tendency towards complete obsolescence.

The presence of white scales surrounding the forewing (upper surface) discoidal spot is of considerable interest. The female parent possessed this *albiannulata* character. In the control group two out of six daughters showed the effect; in the chilled group there were five out of 11; making a total of seven out of 20. There was also one male in this group with a few white scales. With occurrence in two groups this appears to be a genetic character although accentuated by cold. Some Durham males possess a few white scales but the only *albiannulata* males I have seen from the south have appeared in these experiments. In s.sp. *artaxerxes*, in both sexes, the black discoidal has been replaced by white scales and even if the discoidal is minute there are no black scales. From the appearance of the *albiannulata* effect in the F_1 generation it would seem that this is a dominant character of uncommon distribution in southern England.

Apart from the particular application to *Aricia agestis*, it would appear that the treatment of other lycaenid pupae by chilling would be a valuable research tool in determining which aberrations are only environmental. It seems certain that variation such as *fowleri* South and *syngrapha* Tutt in *Lysandra coridon* are genetic but colour deviations, spot size and distortion, obsolescence and similar appearances are environmental, or a combination of environmental influence and genetic composition. As a practical detail it is important that the pupae are placed in the low temperature within an hour or two of shedding the larval skin. *A. agestis* larvae pupate readily in loose peat on the floor of the rearing cages. It is easy to remove the slight cocoon and as soon as pupation is completed the pupa can be put in a refrigerator in a small tin. The temperature should be checked at regular intervals.

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THE STYLE OF THE HOUSE

By F. D. Buck, A.M.I.Ptg.M., F.R.E.S., Editor.

In the early days of commercial printing, when the printer was also the publisher, the more progressive printers, to obtain some uniformity in their work, laid down a set of rules for their compositors to follow. At first these rules were, in the main, of a technical nature, covering in fact the style in which the type was set, i.e., spacing, arrangement of chapter heads, running heads, folios, colophons, etc. These became an invaluable tool to the publishing houses when they developed as separate businesses from printing, ensuring that though several printers may be used, by conforming to the publishing house style, a degree of uniformity was maintained. With the development of newspapers and magazines it was found convenient for each journal to acquire its own style, so much so that it is an important item for consideration for a new publication going into production; it is difficult to conceive a journal being efficiently and effectively produced without a style. An outstanding example of the operation of a style is apparent in the treatment of street names in many newspapers; and since it is so different from normal usage must, at some time or other, have been noticed by everybody.

Experience teaches that unless a style is developed and followed a journal degenerates into a hotch-potch of irregularity, and while an author is entitled to reasonable freedom to develop his own writing style it cannot be at the expense of the style of the journal for which he is writing.

Turning to entomological journals in particular, one finds certain details of style universally observed by journal and author alike. Generic and trivial names* for instance are always in italics except where they are new and are set in bold face. So firmly is the former entrenched in the entomological mind that they are underlined even in correspondence—underlining being the method of informing the printer that the words so treated are required in italics.

It is worth noting, however, that though most of our journals follow a style, none so far as the present writer is aware issue printed instructions as do some of the Continental publications. This does not mean that our British journals are inferior to their Continental counterparts—indeed it would be difficult, it not impossible, to suggest improvements in this respect in some of our publications; probably due in great measure to vigilant and conscientious editing.

*See Mayr, Linsley and Usinger, 1953, *Methods and Principles of Syst. Zoo.*, York, Pa., p. 247-248.

The object of the following instructions is to place in the hands of our contributors a guide which they can follow when writing papers and notes for our Proceedings and Transactions.

NOMENCLATURE.

At all levels the names should be correct taking into consideration the most recent published work and not merely extracting from one of the older works such as: Tutt, J. W. (1899-1914, *Brit. Lep.*, **1-5**, **8-11**, London), or Fowler, W. W. (1887-1891, *Col. Brit. Is.*, **1-5**, London), which are considerably out of date in this respect. In a paper, however, as distinct from exhibition notes, such a basis may be used, but only if the source of the nomenclature is clearly stated. Bearing in mind the opening remarks on this subject it would seem to be of little use to cite catalogues, but it is necessary to take a basis against which current work is to be considered and upon which modern nomenclature can be built. Thus for our purposes we can take as a basis *A Check List of British Insects* compiled by Kloet and Hincks (1945, Stockport) for all orders except Lepidoptera in which case Heslop, I. R. P. (1947, *Indexed Check-list of the British Lepidoptera*, London), should be used, but these will be superseded in part by such works as *A Check List of the British Hemiptera-Homoptera. Auchenorhyncha* (China, W. E., 1950, *Ent. mon. Mag.*, **86**: 243-251), *An illustrated list of the British Tortricidae* (Bradley and Martin, 1956, *Ent. Gaz.*, **7**: 151-156) and *The British Agromyzidae (Dipt.)* (Spencer, K. A., 1956, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1954-55**: 98-108) among others.

Names should be given in full—generic and trivial—and the name of the author of the latter must be given. The generic name is only contracted to the initial when repeated in consecutive species or in discussion, provided no ambiguity arises; when in doubt the name should be spelt out. A full stop always follows the generic name when so contracted. The trivial name must not be given on its own, i.e., *Pieris rapae* L. or *P. rapae* L., never *rapae*, except in such cases when the name is used frequently in discussion and the repeated use of the generic name or initial is pedantic.

Our publication follows modern practice in the use of parentheses in conjunction with authors names. These are used when the author originally assigned the species to a genus other than that in which it stands at the time of writing. Otherwise they are not used. Unfortunately compilers of check lists of Lepidoptera do not make use of this, in consequence we do not use parentheses at all in this order. Should at a future date the necessary information become readily available then this Order will conform with the others.

An illogical point in so many manuscripts lies in the fact that, though it is conceded that insects require to be cited by their scientific names, even though, particularly in Lepidoptera, a common name is available, plants, birds, mammals, etc., are given by their common name when often this may not clearly indicate the plant or animal intended. Furthermore, even when a name is given scientifically it is more usual than not for the author to omit the authority. Surely if an insect requires to be named scientifically it is just as important to do so with other members of the animal and vegetable kingdoms, and the authority is just as important with these as with insects. While some authors may consider it desirable to cite both the scientific and common names this journal requires the scientific name to be given first with the common name in parentheses following.

Infra-subspecific nomenclature is a source of much difficulty as far as this publication is concerned, particularly in Lepidoptera. In this Order far more attention has been given to nomenclature at this level, not all of it sound, and some very damaging and misleading. The five terms used are subspecies, race, variety, aberration and form.

A subspecies, to repeat the three citations given by Torre-Bueno (1950, *A Glossary of Entomology*, p. 286, New York), is "a geographical or host variation (British Commission on Nomenclature*); a part of a species marked by average differences in characters which intergrade with those subspecies occupying different, though usually adjacent, parts of the general range of the same species, along the common boundary of which intergradation is complete (McAtee). The essence of the subspecies is intergradation, assumed or actual (Ferris)."

A race (Torre-Bueno, *loc. cit.*, p. 246) is a form of a species with constant characters which are not quite specific; usually occurring in a different faunal region and is nearly synonymous with subspecies. However, Mr. A. L. Goodson (*in lit.*) says there is no difference, race is merely an obsolete term for subspecies.

A form is any example, or group of examples, of a species which differs from the usual or type in some uniform character, and includes seasonal, dimorphic and sexual forms. Modern practice it seems reserves this for sexual or dimorphic variation.

Variety is a loose term and, according to Torre-Bueno, appears to be synonymous with aberration which, incidentally, he does not cite. However, the scientific lepidopterist regards variety as synonymous with subspecies and uses aberration for those examples differing in any other way from those mentioned above. Mr. Goodson (*in lit.*) points out that the term variety has been so diversely used in the past that it gives rise to great confusion, some authors (most of the older ones) meant subspecies, but many applied it to aberrations (var. *valesina*, etc.). The term has now been discontinued because of this.

The rules of zoological nomenclature apply just as much to the kind of names under discussion as they do to other names, and in consequence the suggestions made by Bright and Leeds in their Monograph of the Chalk Hill Blue Butterfly of employing the names brought forward for the aberrations of *Lysandra coridon* Poda to other species, are without scientific foundation. No name can be transferred in this manner. Owing to the confusion caused by this kind of practice it is most important that the authority for the aberrational name is given, and if it is not found possible to give the authority for the name then the name should not be used.

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*Presumably he means International Commission on Zoological Nomenclature.

ABBREVIATIONS.

When considering abbreviations it must be constantly borne in mind that the paper or note is written to be read. Every abbreviation reduces to some extent the ease with which this is done, and too many can reduce reading to very heavy going indeed. It takes many abbreviations to effect any real saving in space and consequently in cost.

The use of abbreviations and symbols in tabulated data is permitted extensively because the essence of such methods is to provide a concise and readily comprehended overall picture, but a full and easily understood explanation of all abbreviations must be given, preferably close to the table.

The directions north, south, east and west are contracted to the initial, capitalized and followed by a full stop when parts of Countries and Counties are indicated; i.e., N. Africa, E. Kent, N.W. France, etc., but where it is part of a name it must be spelt in full as in the case of North Weald, South Shields, etc.; similarly when used as a direction it should be spelt in full—northerly, southerly, etc., and should not be contracted. Secondary compass points are always hyphenated except when abbreviated as indicated above.

Abbreviations can be a source of confusion, ambiguity and variation. The greatest cause of difficulty in this respect lies in authors names and counties; a list of recommended abbreviations for the counties is given in Appendix 1, and a list of abbreviations for some of the more widely used authors names are given in Appendix 2. A standard list is necessary because, particularly amongst the authors, two different abbreviations could be used for the same name or the same abbreviation could be used for two or more different names, i.e., Hf. or Hoff. for Hoffmeyer, or Hof. for Hoffmeyer, Hofmann or Hoffmanseg.

Certain abbreviations should be restricted in their use, they are ab., var., f., s.sp., ♂, ♀, and ☿. The first four are only permissible when used in association with a name—ab. *suffusa* Tutt—under other circumstances (except tabulation) they should be spelt out in full. Male, female and neuter symbols should be reserved for tables and places where many frequent repetitions occur. This last mentioned circumstance is a special case where almost any abbreviation is permissible provided such abbreviations are explained and no ambiguity arises. Two abbreviations not to be used are the ampersand (&), except again for tables, bibliographies and authors names, and abbreviations for mercury vapour which is variously given as M.V., MV., M.v., m.v., and mv., tables and frequent repetitions are again excepted.

In the construction of keys a certain amount of liberty may be taken with the "style" in the interests of a concise and clearly understood key. Abbreviations not permitted in the text may be used, as can figures commencing from 1.

The per cent mark is not used in the text, but spelt "per cent", and though a contraction for the latin phrase *per centum* is in such common use that the full stop afterwards is unnecessary.

The order and family should be given with the insect when first mentioned and is probably most easily given in parentheses after the name of the insect, contracting the order and spelling the family in full, thus:—*Apion ervi* Kirby (Col., Curculionidae). A list of contractions for the Orders are given in Appendix 3.

TREATMENT OF CERTAIN WORDS.

There seems to be much doubt in the minds of our authors regarding the words hindwing, forewing, upperside, underside and subspecies, which for this publication should always be one word, not two, nor compound.

DATES.

These should invariably be given in the sequence day, month, year, and when all three are given are shown in figures with the month in minuscule (lower case) roman numerals, viz.: 16.vi.57; when more than one day is covered, 16 and 17.vi.57, 16 to 20.vi.57, 30.vi and 1.vii.57, or 29.v. to 7.vi.57. In cases where only the day and month, or month and year, are mentioned the month is spelt in full in the normal way—17th June, or June 1957; and similarly when more than one day or month is mentioned, 17th and 18th July, 17th to 21st July, 30th June and 1st July, 29th June to 6th July, etc.

NUMERATION.

All numbers up to and including ten except those used in dates, indicating magnification, and sections of a note or paper, should be spelt out; above ten, arabic figures should be used. To place an arabic figure in parentheses to indicate the number of examples does not make for clarity or easy reading, especially when used in a note which has been divided into sections; in consequence this method of indicating the number of specimens taken or bred should be avoided. Except when frequently repeated the saving in space does not justify the possible confusion, and when frequently occurring the confusion is aggravated. It is, therefore, recommended that in cases where a few instances occur the following method should be used: seven examples, or 11 examples; and where the instances are numerous the word examples can be dropped provided the meaning of the figures is given.

Where a number commences a sentence it must always be spelt out; if it is unwieldy to spell in full then the sentence must be re-cast.

QUOTING FROM OTHER AUTHORS.

From time to time it is necessary to give the opinions, etc., of other authors, and whilst this can often be satisfactorily done by paraphrasing, there are times when the simplest and clearest way is to quote direct from the author's work. While everyone is aware that such quotations must be placed in inverted commas, it is by no means so well known that the work must be quoted literally, notwithstanding anything in this style, including any errors, of spelling or other kinds, which may occur. In the case of any such error the word "sic" in brackets and in italics is inserted immediately after the error thus: [*sic*]. This indicates quite clearly that the error belongs to the work quoted and is neither a typographical error nor an error of the current author. It will perhaps do no harm to draw attention here to the difference between parentheses ( ), brackets [ ], and braces ⏞, each of which serves its own particular purpose. To return to interpolations into quotations; if it is deemed really necessary for clarity it is permissible for an author to insert his own short comment into a quotation in brackets. Brackets are particularly used to distinguish such comment from any parenthetical remarks in the original quotation. Should it so happen that the quotation already includes a passage in brackets, then the matter becomes complicated and must be paraphrased. This is one reason why the present writer dislikes the extensive use of parentheses, preferring the use of commas, or if the punctuation is at all extensive, the em, or mutton, rule —.

It is sometimes necessary to quote the beginning only, or the end only, or both, of a long passage. This is effected by the substitution of an ellipsis for the missing part. An ellipsis consists of three full stops spaced out " . . . " for the ommitted part whatever the length and whatever the position. When the ellipsis terminates a sentence the full point closing the sentence is also included making four full stops in all.

The foregoing paragraph does not mean that two widely separated passages should be combined into one quotation linked by an ellipsis. In fact when two passages are separated by more than a line or so it is safest to make them two quotations joined by the conjunction and.

Quoting from other authors does not remove the obligation of a proper reference either in the text or in the bibliography; and the use of an ellipsis in such a quotation underlines the need for a reference. Nothing can be worse than to wonder if, as a reader, a differing line of thought from that of the author being read, is in any way supported by the passage covered by an ellipsis, and to find no ready reference.

REFERENCES.

When a work or author is cited a full reference must be given, either immediately in the text or in bibliography at the end of the paper, the latter being arranged in alphabetical order of authors. To quote an authority without giving a reference does not give the interested reader the opportunity of enquiring further. References must always be in the same form: author, year of publication, title of work, journal or place of publication, volume, and page range. The name of the journal, or the title of the work (if published separately) must be in italics;

the volume number in bold arabic numerals; and the page range in arabic numerals, separated from the preceding part of the reference by a colon. If a series is quoted this appears in arabic figures in parentheses before the volume number, and if a fascicle or part number is quoted this goes in arabic figures in parentheses after the volume number. The following will serve as examples: Massee, A. M., 1954, The Hemiptera-Heteroptera of Kent, *Trans. Soc. Brit. Ent.*, **2** (12): 245-280, or Mosely, M. E., 1939, *The British Caddis Flies* (*Trichoptera*), London: pp. 7-22.

When quoting a paper the first and last pages of the paper should be given and if only a short section or passage is referred to this can be indicated in the text. The author in a bibliography is given surname first, followed by initials only whatever the author used as a signature. Compound names go under the last name if English* and the whole name if foreign, which is the custom of the Bodleian in Oxford.

Periodicals and journals used in reference should be abbreviated according to the *World List of Scientific Periodicals*, a useful selection of which is available in *A List of abbreviations of the Titles of Biological Journals* issued by the Biological Council, and *Serial Publications in the Library of the Royal Entomological Society of London*, published by that Society. The title must be given in the language in which it is written unless in Russian or similar language, when an English translation is given and "in Russian" added in parentheses; Authors names must be transliterated according to the Royal Society Rules.

When references are gathered together at the end of the paper in a bibliography the references in the text should be in the form of the author and year of publication. On occasions it is found that a reference is made to two works by the same author published in the same year. To avoid any possible confusion arising from this the letters a, b, c, etc., are inserted immediately following the year of publication, both in the text and in the bibliography, of only those references concerned.

Works to which there is no reference in the text should not be included in the bibliography, but if there is sufficient justification an additional list can be given under the heading "further reading".

CAPITALS.

There are two circumstances which seem to cause doubt whether to use capital letters or not. One concerns the common names of trees where capitals and lower case letters are used in manuscripts with apparent indiscrimination; these in general are common nouns and as such, of course, do not carry a capital. The other cause of difficulty arises from adjectives derived from tribe, family and ordinal names. Collins, H. F. (1956, *Author's and Printer's Dictionary*, London: 10th

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*Our list of members and the arrangement of the Annual Exhibition reports are an exception to this since they have been published in their present manner for very many years now.

Edition, p. 55), says adjectives only carry capitals when derived from a proper noun, except where such an adjective has become common usage. Adjectives of this type are without doubt of common usage in entomology. Further, Collins adds, when there is any doubt use a lower case letter.

Horace Hart (1957, *Rules for Compositors and Readers at the University Press, Oxford*, London: 36th Edition, p. 55) agrees, and opens his chapter on capital letters with the words, "Avoid beginning words with capitals as much as possible; . . . ".

CONSTRUCTION OF KEYS.

There are several ways of constructing a key, some of which become vague and confusing if of any length, particularly if they are of the kind which employs indentations and reference marks to indicate the various sections. The clearest and simplest form of key, and the style to be used, has each couplet numbered serially on the left and at the end is continued out to the right to a species (or genus), or the number of the first line of the section to which the characters contained therein refer, i.e.:—

1. Antennal insertions hidden by side margin of head so that the base of segment one is not visible from above. .... 2.
Antennal insertions not hidden by side margin of head, base of segment one entirely visible from above. .... 11.
2. Antennae stout and spindle shaped with long outstanding setae, segment two transverse. .... *Orthocerus*.
Antennae abruptly clavate or gradually widening to the apex. ... 3.

This type of key is obviously best dichotomic; three or more alternatives can be covered on a dichotomous basis by the insertion of a negative line into the couplet, thus:—

1 Elytra striate. .... *Species A*.
Elytra not striate. .... 2.
2 Elytra seriate-punctate. .... *Species B*.
Elytra confusedly punctured. .... *Species C*.

THE COPY.

The final copy for the printer should be typed on one side of the paper only and with double spacing, there should be a generous margin on the left and a reasonable margin on the right, say 1½″ and ½″; and should be the top copy, not a carbon copy. Though it is not everybody who has access to a typewriter, and in consequence some must write their manuscript by hand, the other points should be carefully noted, but every effort should be made to get the copy typewritten, especially if it is at all lengthy.

Exhibitors at all meetings and at the Annual Exhibition should submit a report of the exhibit to the editor.

Attention to the following points will greatly add the scientific value of exhibits and our Proceedings, besides assisting the Publication

Committee in preparing the reports for publication, a task which in spite of the publication of necessary details in our Proceedings every year still involves a quite unjustifiable amount of labour and time.

LABELLING OF EXHIBITS.

Adequate labelling of all exhibits is essential; such labelling to include:—

(a) Name and address of exhibitor.
(b) Order and name (generic and trivial, with the author of the trivial name) of each species.
(c) Locality (at least County, or if exotic, Country), or, in the case of bred specimens, the place of origin.
(d) Date (at least month and year) of capture or breeding (or, in the case of a series, first and last dates).
(e) Any other information of scientific interest, such as "gynandromorph", etc., relating to any particular specimen.

REPORT FOR THE PROCEEDINGS.

A report, including all the above points given for labelling, and amplified to give short details of any special aberrations, gynandromorphs (e.g. left side male, right side female), or other points of interest, must be handed to the recorder when the exhibit is handed in (at the Annual Exhibition) or to the editor (at Ordinary meetings). In the case of aberrations, etc., it is not of much permanent scientific value to say it is an extreme, unusual or rare variety or aberration. Either describe it, or better still give the name of it with the author, e.g., ab. *pallida* Tutt. Such a report to be written or typed (preferably the latter) on one side only of the paper, with a 1½″ margin on the left hand side, with at least double spacing between the lines, in the form used for the record of the Proceedings.

Where the author of a trivial name is not known, a blank space should be left for its insertion, but, to avoid misunderstandings, every endeavour should be made to furnish this in the first instance. This is particularly necessary in the case of aberrations because it often happens that various authors have used the same name for quite different aberrations of the same species.

It is as well to remember that the editor may be less familiar with your particular Order than you are yourself, and in consequence may have greater difficulty in obtaining such information than you.

Where the exhibit falls into clear sections these are shown by arabic numerals in parentheses which are placed at the beginning of each section. To indicate to the printer where to set the type in italics, capitals, small capitals or bold face, the words to be so treated must be underlined with one line for italics, two lines for small capitals, three lines for capitals and with a wavy line for bold face.

Once the paper is in type a galley proof will be sent to the authors of papers only. From this stage the responsibility for accuracy lies with the author, he must read the galleys carefully and thoroughly, but changes in the original should not be made at this stage unless essential, because author's corrections are costly. This does not mean that definite errors should not be put right, but since they would be the result of bad copy preparation they should not, except in most unusual circumstances, arise. Nevertheless, however carefully a proof is read, errors will still arise if corrections are marked ambiguously, therefore appendix four contains a list of proof reader's marks understood by all printers—indeed, in the main, they are international.

Comments and notes written in the margins of manuscripts and galley proofs have on occasion found their way into the text due to ambiguous marking or misunderstanding by the printer. This can always be avoided by encircling any such remarks, details treated thus are recognised for what they are, and are "not copy".

AUTHOR'S SEPARATES.

Authors of papers printed in the Transactions are supplied with 25 free reprints, any further copies required by the author, for his personal use will be supplied at cost if the request is made when the galley proofs are returned. Free separates will not be supplied of Reports, Obituaries, Reviews, etc. However, if an author desires reprints of this type of contribution they can be supplied at the author's request and will be invoiced at cost.

THE INDEX.

Although the compilation of the index is not the responsibility of the contributor or author, an understanding of the way in which it is made up is necessary for anyone compiling it, and useful for those using it.

Two main sections comprise the index: the first lists general items in alphabetical order and includes "Field Meetings" and "Papers read but not published". Under each of these headings the field meetings and papers are listed, again alphabetically. It is hoped the book reviews will develop so that they too may be treated in this way. The second part is the index to species and is sub-divided into entomological Orders and convenient groups for other animals and plants. Once more the species and the sub-divisions are arranged alphabetically.

The species are listed with the trivial name first, because it is considered that with the changes that occur in nomenclature it is easier to locate insects by their trivial names than by their generic, especially when synonomy is given in the text, in which case both names are included in the index. Furthermore, theoretically at least, as research continues the trivial name in the majority of instances should become stable, whereas as morphological research goes on more changes are likely in the supraspecific nomenclature with re-alignment of generic groups. Two further reasons which may perhaps weigh more with the majority of our members are, the lepidopterists tend to think in trivial names only, and the index to our Proceedings and Transactions have for some time now been compiled in this way.

Alphabetical arrangement in this second section is subject to interpretation, so the following should clear up any ambiguities. The trivial name only is considered unless two identical names occur, and then only is the synonym or generic name taken into account. Thus the arrangement is:

flammea, Meliana	not *flammealis, Endotricha*
flammea, Panolis	*flammea, Meliana*
flammealis, Endotricha	*flammea, Panolis*

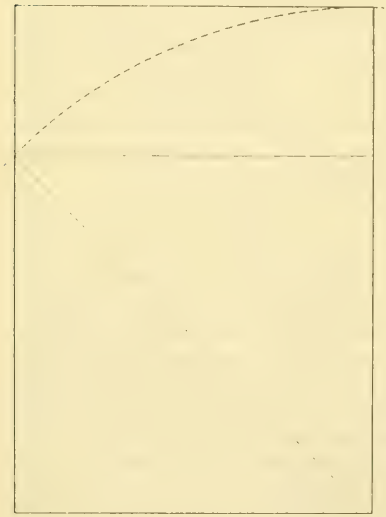
but when the trivial name is compound it is treated as though the hyphen is non-existent and the name one word. In the case of composite aberrations, i.e., *lavendula* + *suffusa*, *L. coridon* ab. the two sections of the aberrational name are treated as separate words.

Synonomy when given in the text is included in the index under both names, with the synonomy cross referenced. In the case of the synonym the correct name has an equals mark preceeding it and clearly indicates that the synonomy is reversed. *Metacantharis clypeatus* (Ill.) (*haemorrhoidalis* F.) would be indexed *clypeatus* (*haemorrhoidalis*), *Metacantharis*, and *haemorrhoidalis* (=*clypeatus*), *Metacantharis*. Generic synonomy will only be indexed in the one line thus; *notha*, *Archiearis* (*Brephos*).

It is important to remember that though a name may occur on any page more than once the individual pages are given once only.

ILLUSTRATIONS.

Though figures are usually produced separately it does not follow that they should be scattered individually throughout the paper. Ideally each figure should be in such a position that the reader can refer to it without turning pages. In practice the figure is generally of a size that it is difficult to get it on to the same page as, or the facing page to, the reference. Either it has to go overleaf itself, or it forces the reference overleaf; or, more than one reference to it is given, so widely separated that one must go overleaf to the figure; or two references to two different figures are given, so close together, that one of the figures must go overleaf. The consequence of this is that a search must be made through the text for the appropriate figure when reading. Therefore, where several figures are given these should be made up into full pages and collected at the end of the paper. Thus the reader, having found the figures, can insert a book mark and have the



Golden Square.

figures readily accessible all the time he is reading the paper. This is also a matter of economics—it being much cheaper to produce one or two large blocks of composite figures than a number of small blocks.

Each page of figures should, when reduced for printing, occupy the same area as a page of text, but due allowance must be made for the legend. It is suggested therefore that the figure or figures should cover the area of a "golden square" with a base of four inches, the width of a page of text. This would leave space for eight lines of legend. A "golden square" is not as its name implies, a square, but an oblong of the proportion $1 : \sqrt{2}$ and is the same height as the diagonal of a square constructed on its base—see diagram. This rectangle has the advantage of producing two rectangles of exactly the same proportions when subdivided equally across its length. Thus by deciding upon a "golden square" of any reasonable size when producing the first drawing, and adhering to it, and its sub-divisions into two or four, a series of drawings can be made which are simple to form into pages.

This should be borne in mind when producing figures though if the author does not feel competent to make these up into pages he can leave this to the editor, but it may result in re-arranging the sequence and consequential re-numbering.

Plates of photographs, etc., though not so easily made up into pages should receive similar treatment.

ACKNOWLEDGMENTS.

Thanks are due to the many persons who have given much help and advice, in particular Dr. B. M. Hobby, Dr. T. R. E. Southwood, Messrs. A. E. Gardner, A. L. Goodson, W. H. T. Tams, and the assistant editors and Publication Committee of the Society.

USEFUL WORKS OF REFERENCE.

The Concise Oxford Dictionary, adapted by H. W. Fowler and F. G. Fowler from the Oxford Dictionary, Clarendon Press, Oxford, 18/-.

A Dictionary of Modern English Usage, by H. W. Fowler, Clarendon Press, Oxford, 15/-.

Authors and Printers Dictionary, by F. Howard Collins, Oxford University Press, Oxford, 10/6.

Rules for Compositors and Readers at the University Press Oxford, Oxford University Press, London, 6/-.

Thesaurus of English Words and Phrases, by Dr. P. M. Roget, Longmans, Green & Co. Ltd., London, 18/-.

General Notes on the Preparation of Scientific Papers, The Royal Society, London, 2/6.

The Transliteration of Russian, Serbian and Bulgarian for Bibliographical Purposes, by H. S. Bushell, The Royal Society, London, 1/-.

Appendix 1.

RECOMMENDED CONTRACTIONS FOR COUNTIES OF THE BRITISH ISLES.

Where it is not desired to spell the names of Counties in full the following contractions should be used.

Aberdeenshire	Aber.
Armagh	Arm.
Ayrshire	Ayr.
Angus	Angus
Bedfordshire	Beds.
Berwickshire	Ber.
Brecknockshire	Breck.
Buckinghamshire	Bucks.
Buteshire	Bute.
Caernarvonshire	Caer.
Caithness	Caith.
Cambridgeshire	Cambs.
Cardiganshire	Card.
Carmarthenshire	Carm.
Cheshire	Ches.
Clackmannan	Clack.
Cornwall	Corn.
Cumberland	Cumb.
Denbighshire	Denb.
Derbyshire	Derby.
Devonshire	Devon.
Donegal	Don.
Dumfriesshire	Dumf.
*Dunbarton	Dunb.
Durham	Dur.
East Lothian	E. Loth.
Fermanagh	Ferm.
Flintshire	Flint.
Galway	Gal.
Glamorgan	Glam.
Gloucestershire	Glos.
Hampshire	Hants
Hebrides	Hebr.
Herefordshire	Here.
Hertfordshire	Herts.
Huntingdonshire	Hunts.
Inverness-shire	Inv.
Isle of Wight	I.o.W.
Isle of Man	I.o.M.
Kildare	Kild.
Kilkenny	Kilk.
Kincardine	Kinc.
Kinross	Kinr.
Kirkcudbrightshire	Kirk.
Kent	Kent
Lanark	Lan.
Lancashire	Lancs.
Leicestershire	Leices.
Leitrim	Leit.
Limerick	Lim.
Lincolnshire	Lincs.
Londonderry	Lon.
Merionethshire	Mer.
Middlesex	Middx.
Midlothian	Midloth.
Monmouthshire	Mon.
Montgomeryshire	Montg.
Morayshire	Moray.
Nairnshire	Nairn.
Norfolk	Norf.
Northamptonshire	Northants.
Nottinghamshire	Notts.
Northumberland	Northumb.
Orkney Is.	Ork. Is.
Oxfordshire	Oxon.
Peebleshire	Peeb.
Perthshire	Perth.
Pembrokeshire	Pemb.
Radnorshire	Rad.
Renfrewshire	Renf.
Roscommon	Ross.
Ross & Cromarty	R. & Crom.
Roxborough	Rox.
Rutlandshire	Rut.
Shropshire	Salop
Selkirk	Selk.
Shetland Islands	Shet. Is.
Somerset	Som.
Staffordshire	Staffs.

*Not Dumbarton, this is the County town of Dunbarton—see Collin, H. F. (1956, *Authors and Printers Dictionary*, Oxford, p. 109); also Bickmore, D. P. and Couzens, F. C. (1955, *Oxford Home Atlas of the World*, London, p. 14).

Stirling	Stirl.	Westmorland	Westmor.
Suffolk	Suff.	Wexford	Wex.
Surrey	Surrey	Wicklow	Wick.
		Wigtownshire	Wig.
Tipperary	Tip.	Wiltshire	Wilts.
Tyrone	Tyr.	West Lothian	W. Loth.
		Worcestershire	Worcs.
Warwickshire	War.		
Waterford	Wat.	Yorkshire	Yorks.

It will be noted that the contractions to be used for Hampshire (Hants) and Shropshire (Salop) do not require a full stop. This is because both Hants and Salop are in fact not contractions at all but older names for their respective Counties.

Appendix 2.

RECOMMENDED TREATMENT OF AUTHORS NAMES.

Abbott & Smith	Abb. & Smith	Bourgoin	Bourg.
		Boyd	Boyd
Ahrens	Ahr.	Brahm	Brahm
Allard	Allard	Brants	Brants
Allibert	Allib.	Brebisson	Breb.
Arag	Arag	Bremer & Grey	Br. & Grey
Arrow	Arrow	Brisout	Bris.
Aubé	Aubé	Britten	Britt.
		Browne	Browne
Bach	Bach	Bruand	Bruand
Bankes	Bankes	Brullé	Brullé
Barrett	Barr.	Brünnlich	Brün.
Baudi	Baudi	Bullock	Bull.
Beare	Beare	Burkhardt	Burkh.
Bechstein	Bech.	Burrows	Burr.
Beck	Beck	Busck	Busck
Bedell	Bed.	Butler	Butl.
Bentinck	Bentinck	Buysson	Buys.
Bergsträsser	Bergstr.		
Bernhauer	Bernh.	Cabeau	Cab.
Berthold	Berth.	Cameron	Cam.
Bjerkander	Bjerk.	Capieux	Cap.
Blackburn	Blackb.	Carpenter	Carp.
Blanchard	Blanch.	Castelnau	Cast.
Blatch	Blatch	Cederjhelm	Ceder.
Block	Block	Champion	Champ.
Boheman	Boh.	Chapman	Chap.
Boieldieu	Boield.	Chapuis	Chapuis
Boisduval	Boisd.	Charpentier	Charp.
Bold	Bold	Chaudoir	Chaud.
Bolivar	Bolivar	Chevrolat	Chev.
Bonelli	Bon.	Chitty	Chitty
Bonsdorff	Bons.	Chrétien	Chrét.
Bondroit	Bond.	Clairville	Clairv.
Bonvouloir	Bonv.	Clark	Clark
Borkhausen	Borkh.	Clemens	Clem.
Börner	Börn.	Clerck	Clerck
Bosc	Bosc	Cockayne	Cockayne
Bouché	Bouché	Cockerell	Cockerell

Collins	Collins
Comolli	Com.
Constant	Const.
Cooke	Cooke
Cosmovici	Cosm.
Costa	Costa
Coverdale	Coverd.
Cramer	Cram.
Creutzer	Creutz.
Crewe	Crewe
Crotch	Crotch
Curtis	Curt.
Czemp	Czemp
Czwalina	Czwal.
Dale	Dale
Dalman	Dalm.
Dawson	Daws.
Degeer	Deg.
Denny	Denny
Dejean	Dej.
de Selys	Selys
Desbrochers des Loges	Desbr.
Des Gozis	Des G.
Desvignes	Desv.
Dollman	Dollm.
Donisthorpe	Donis.
Donovan	Don.
Doubleday	Doubl.
Douglas	Dougl.
Dillwyn	Dill.
Drapiez	Drap.
Dufour	Duf.
Duftschmidt	Dufts.
Dumeril	Dum.
Duponchel	Dup.
Durrant	Durr.
Duval	Duv.
Edwards	Edw.
Eichoff	Eich.
Elliman	Ellim.
Ellis	Ellis
Emery	Emery
Eppelsheimer	Eppel.
Erichson	Er.
Eschscholtz	Esch.
Esper	Esp.
Eversmann	Evers.
Evert	Evert
Fabricius	F.
Fähraeus	Fähr.
Fairmaire	Fairm.
Faldermann	Fald.
Fallén	Fall.
Faust	Faust
Fauvel	Fauv.
Fenn	Fenn
Fenyes	Feny.
Ferrari	Ferr.
Fieber	Fieb.
Fischer von Röslerstemm	F.R.
Fischer von Waldheim	F.W.
Flach	Flach
Fleischer	Fleis.
Fletcher	Fletch.
Foerster	Foerst.
Fologne	Fol.
Ford	Ford
Forster	Forst.
Foudras	Foud.
Fourcroy	Fourc.
Fowler	Fowl.
Fraser	Fraser
Freyer	Freyer
Frohawk	Frohawk
Frölich	Fröl.
Fuchs	Fuchs
Fuessly	Fuess.
Ganglebauer	Gangl.
Gaut	Gaut
Geoffroy	Geoff.
Georg	Georg
Gemminger	Gemm.
Gené	Gené
Gerhardt	Gerh.
Germar	Germ.
Gerning	Gern.
Gerstaecker	Gerst.
Geyer	Gey.
Glitz	Glitz
Gillmeister	Gillm.
Gmelin	Gmel.
Goeb	Goeb
Goeze	Goeze
Gorham	Gorh.
Graells	Graells
Graslin	Gras.
Gravenhorst	Grav.
Gredler	Gred.
Gregson	Gregs.
Grenier	Gren.
Gridelli	Grid.
Griffith	Griff.
Grimmer	Grim.
Grouville	Grouv.
Guenée	Guen.
Guérin	Guér.
Guillebeau	Guil.
Gyllenhal	Gyll.
Hagen	Hag.
Hagenbach	Hagenb.
Halbert	Halb.
Haliday	Hal.

Hampe	Hampe
Hampson	Hamps.
Hansemann	Hanse.
Hardy	Hardy
Harold	Har.
Harris	Harris
Hartert	Hartert
Hartig	Hartig
Hatchett	Hatch.
Haworth	Haw.
Heer	Heer
Heinemann	Hein.
Hellenius	Hellen.
Helliesen	Hellie.
Hellwig	Hellw.
Herbst	Herbst
Hering	Her.
Herrich-Schäffer	H.-S.
Herschel	Hers.
Heyden	Heyd.
Heylaerts	Heyl.
Hochenwarth	Hocken.
Hochhuth	Hochh.
Hodgkinson	Hodgk.
Hoffmansegg	Hoffman.
Hoffmeyer	Hoffmey.
Hofman	Hof.
Holme	Holme
Hope	Hope
Hoppe	Hoppe
Hübner	Hübn.
Hufnagel	Hufn.
Hümmel	Hümm.
Illiger	Ill.
Janson	Jan.
de Joannis	Joan.
Johansen	Johan.
Joy	Joy
Jeannel	Jean.
Jekel	Jekel
Karl Daniel	K. Dan.
Keferst	Kef.
Kellner	Kell.
Keys	Keys
Kiesenwetter	Kiesenw.
Kirby	Kirby
Klug	Klug
Knaggs	Knaggs
Knoch	Knoch
Koch	Koch
Kollar	Koll.
Kolenati	Kolen.
Kraatz	Krattz
Kryn	Kryn
Kugelann	Kug.
Kunze	Kunze
Küster	Küst.
Kutschera	Kuts.
Kuwert	Kuw.
Laboulbene	Lab.
Lacordaire	Lac.
Laicharting	Laich.
Laporte	Lap.
Laspeyres	Lasp.
Latreille	Lat.
Leach	Leach
Le Conte	LeC.
Lederer	Led.
Lefebvre	Lef.
Leske	Leske
Lewin	Lewin
Lewis	Lewis
Linnaeus	L.
Ljungh	Ljungh
Logan	Log.
Lucas, W. J.	Lucas, W.J.
Lucas, H.	Lucas, H.
Lüders	Lüd.
Luze	Luze
Mabille	Mab.
Maeklin	Maek.
Mahony	Mah.
Mann	Mann
Mannerheim	Mannerh.
McLachlan	McLach.
McLeay	McLeay
Märkel	Märk.
Marriner	Marr.
Marseul	Mars.
Marsham	Marsh.
Matthews	Matth.
Meigen	Meig.
Mellié	Mell.
Ménétries	Méné.
Mequ	Mequ
Metcalfe	Metc.
Meyer-Duer	M.-D.
Meyrick	Meyr.
Mill	Mill
Millière	Millière
Moll	Moll
Motschulsky	Mots.
Muhlig	Muhl.
Müller	Müll.
Mulsant	Muls.
Murray	Murr.
Naezen	Naez.
Newbury	Newb.

Newman	Newm.
Nicelli	Nicelli
Nicholson	Nich.
Nicolai	Nico.
Noerdelman	Noerd.
Nolcken	Nolck.
Nordmann	Nord.
Oberthür	Oberth.
Ochsenheimer	Ochs.
Olivier	Ol.
Osbeck	Osb.
Pallas	Pall.
Pandellé	Pand.
Panzer	Panz.
Paykull	Payk.
Pelerin	Pele.
Perris	Perris
Perty	Perty
Peyerimhoff	Peyer.
Peyron	Peyr.
Pierce	Pierce
Piller	Piller
Piller & Mitterbach	Pill. & Mitt.
Poda	Poda
Pontoppidan	Pont.
Pool	Pool
Poppius	Popp.
Power	Power
Preudhomme de Borre	P. de B.
Preyssler	Preys.
Prout	Prout
Puton	Puton
Putzeys	Putz.
Quensel	Quen.
Raffray	Raff.
Ragonot	Rag.
Rambur	Ramb.
Ratzeburg	Ratz.
Rebel	Rebel
Redtenbacher	Redt.
Reiche	Reiche
Reichenbach	Reichenb.
Reitter	Reitt.
Retzius	Retz.
Rey	Rey
Richards & Thomson	R. & Thom.
Richardson	Rich.
Richter	Richt.
Riley, C. V.	Riley
Roemer	Roem.
Rosenhauer	Rosen.
Rossi	Rossi
Robineau-Desvoidy	R.-D.
Rössler	Rössler

Rottemburg	Rott.
Rye	Rye
Sahlberg	Sahl.
Samouelle	Sam.
Saulcy	Saul.
Saxesen	Sax.
Say	Say
Schaeffer	Schaeff.
Schaller	Schall.
Scharfenburg	Scharf.
Schauffer	Schauff.
Schaum	Schaum.
Schiffermüller	Schiff.
Schönherr	Schön.
Schilsky	Schil.
Schiödte	Schiöd.
Schlager	Schlag.
Schmidt	Schmidt
Schmidt-Goebel	S.-G.
Schneider	Schneid.
Schrank	Schr.
Schreber	Schreb.
Schreiber	Schreib.
Schultz	Schultz
Schutz	Schutz
Scopoli	Scop.
Scott	Scott
Scriba	Scriba
Serville	Serv.
Sharp	Sharp
Shuckard	Shuck.
Siebert	Sieb.
Sircom	Sirc.
Sodoffsky	Sodof.
Solier	Sol.
Sorhagen	Sorh.
Sowerby	Sow.
Spaeth	Spaeth
Spence	Spence
Sperk	Sperk
Speyer	Spey.
Spinola	Spin.
Stainton	Staint.
Stål	Stål
Standfuss	Standf.
Stauder	Stauder
Staudinger	Staud.
Stephens	Steph.
Steudel	Steud.
Steven	Stev.
Stroem	Stroem
Sturm	Sturm
Seidlitz	Seid.
Semenow	Semen.
Serville	Serv.
Suffrian	Suff.
Sulzer	Sulz.

Tauscher	Tausch.
Tengström	Tengst.
Thomson	Thom.
Threlfall	Threlf.
Thunberg	Thunb.
Torre	Torre
Tournier	Tourn.
Treitschke	Treits.
Tutt	Tutt
Van der Lind	V.d.Lind
Vaughan	Vaugh.
Vieweg	View.
Villa	Villa
de Villers	de Vill.
Voet	Voet
Walker	Walk.
Wallengren	Wallengr.
Wollaston	Wollas.
Walsingham	Wals.
Waltl	Waltl
Walton	Walton
Wankowiez	Wank.
Warren	Warr.
Wassmann	Wass.

Waterhouse	Waterh.
Waters	Waters
Webb	Webb
Weber	Weber
Wehncke	Wehn.
Weise	Weise
Wencke	Wencke
Werneberg	Werneb.
Wesmael	Wesm.
Westhofen	Westh.
Westwood	Westw.
Wilkin	Wilkin
Wilkinson	Wilkins.
Williams	Williams
Wissman	Wiss.
Wocke	Wocke
Wood, J. H.	J.H.W.
Wood, W.	Wood, W.
Zeller	Zell.
Zersin	Zers.
Zetterstedt	Zett.
Zimmermann	Zimm.
Zincken	Zinck.
Zschach	Zschach

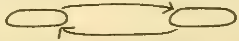
Appendix 3.

RECOMMENDED CONTRACTIONS FOR ORDERS.

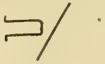
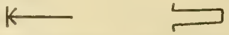
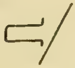
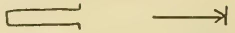
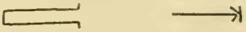
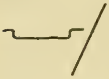
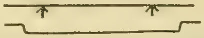
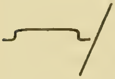
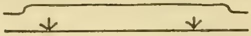
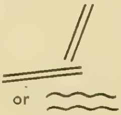
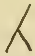
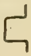
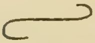
Coleoptera	Col.
Collembola	Collemb.
Dermaptera	Derm.
Dictyoptera	Dict.
Diplura	Dipl.
Diptera	Dipt.
Embioptera	Emb.
Ephemeroptera	Ephem.
Grylloblattoidea	Gryll.
Hemiptera	Hem.
Hymenoptera	Hym.
Isoptera	Isop.
Lepidoptera	Lep.
Mallophaga	Mall.

Mecoptera	Mecop.
Odonata	Odon.
Phasmida	Phas.
Plecoptera	Plec.
Protura	Prot.
Psocoptera	Psoc.
Saltatoria	Salt.
Siphonaptera	Siphon.
Siphuncula	Siphun.
Strepsiptera	Strep.
Thysanoptera	Thysanop.
Thysanura	Thysanura
Trichura	Trich.
Zonaptera	Zonap.

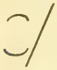
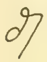
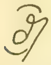
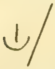
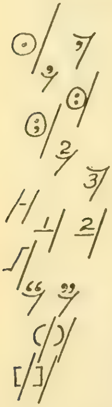
Appendix 4.

MARGINAL MARK	MEANING	MARK IN TEXT
Caps./	Change to capital letters.	≡ Three lines* under word or letter to be changed.
s. caps./ or s.c./	Change to small capital letters.	= Two lines* under word or letter to be changed.
ital./	Change to italics.	— One line* under word or letter to be changed.
bold/	Change to bold face.	∼∼∼ Wavy line* under word or letter to be changed.
rom./	Change to roman.	Encircle word or letters to be changed.
l. c./	Change to minuscules (lower case or small letters).	Encircle word or letters to be changed.
see copy/	Refer to copy for missing matter.	⁁ Caret mark inserted in appropriate place.
appropriate character.	Insert character indicated in the margin.	⁁ Caret mark inserted in appropriate place.
appropriate character.	Change to character indicated in the margin.	/ Strike out incorrect character.
w.f./	Wrong fount. Change to letter of correct fount.	/ Strike through wrong fount character.
9/	Letter reversed (or turned on side).	/ Strike through turned character.
trs./	Transpose.	⊔⊓ or ∪∩ between letters or words; or if separated, encircle letters or words and indicate by arrows thus: 
spell out/	Spell in full.	Encircle the abbreviation or figure.

* *When it is not possible to make these marks clearly in the text it is usually sufficiently clear if the words or letters are encircled.*

MARGINAL MARK	MEANING	MARK IN TEXT
take back/	Take back into preceding line.	] After word(s) to be taken back into preceding line.
N.P./ or *new para/*	Commence new paragraph.	[Before first word of new paragraph.
	Move to left.	 On each side of word(s) to be moved and indicating new position.
	Move to right.	 On each side of word(s) to be moved and indicating new position.
centre/	Centralise line.	 On each side of word(s) to be moved and indicating direction
	Raise type.	 Above and below matter to be raised and indicating new position.
	Lower type.	 Above and below matter to be lowered and indicating new position.
align/	Rectify faulty alignment.	 When alignment is incorrect vertically. When alignment is incorrect horizontally.
⊙□⊙□⊙/	Insert ellipsis.	 Caret mark where required.
□/ □□/	Indent 1 em.★ Indent 2 ems.	 At begining of line.
run on/	Run the paragraph indicated onto the previous paragraph.	 Between paragraphs.
less #/	Reduce spacing.	∠ between the words.

★ *An em is the square of the body size, i.e., an 8pt. em is 8pts. x 8pts. An indention of any number of even ems can be indicated by marking that number of squares in the margin.*

MARGINAL MARK	MEANING	MARK IN TEXT
stet/	Leave as it stands (ignore any marks made).	.... Dotted line under words or letters concerned.
eq#/	Equalise spacing.	V Above spaces concerned in type lines, or < between ends of lines when interlinear spacing is concerned.
#/	Insert space.	⋀ Insert in appropriate place.
	Delete space.	⁀ ‿ Above and below space concerned.
	The dele mark. Delete (take out.)	/ Strike out character or word(s) involved.
	Delete and close up.	⁀ / ‿ Strike out character or word(s) involved and insert close up marks.
	Push down space.	/ Strike out space that is printing.
ffl/ fi/ etc.	Change to, or insert, ligature.	/ Strike out character concerned, or insert caret mark as required.
X/	Change damaged character.	/ Strike out damaged character.
	Insert: full stop, or comma. apostrophe. colon. semi-colon. superior figure (or letter). inferior figure (or letter). hyphen. I em rule/2em rule. oblique stroke. opening and closing quotation marks. opening and closing parentheses. opening & closing brackets.	⋀ Caret mark in appropriate place. ⋀ ⋀ Caret marks in appropriate place.
take over/	Take over into next line.	[Before word(s) to be turned over into next line.

AFRICA REVISITED: THE VICTORIA FALLS AND THE CONGO

By Baron de Worms, M.A., Ph.D., F.R.E.S.

Read 24th April 1958.

It is almost five years since I addressed this Society on a trip which I carried out in Kenya, Uganda and Tanganyika at the end of 1952. As I said on that occasion, once you have been to Africa there is an urge to revisit that vast Continent, and for me the opportunity to do so came in the summer of last year. The Ornithological Society of the Union of South Africa had with great foresight arranged for the first Pan-African Congress of Ornithology to take place at the Victoria Falls in mid-July, thus providing a big incentive.

Accordingly I set out on the morning of 9th July in a Britannia aircraft and reached Rome that evening at 90° F. in the shade, Khartoum by midnight and Nairobi early next morning. I was greeted at Salisbury, the capital of the Federation of Rhodesia and Nyasaland, by Mr. Elliot Pinhey, who is now at the Museum in Bulawayo which I reached by a further flight on the evening of the 10th. As in the capital, this city was *en fête* in honour of the recent visit of the Queen Mother. It was the dry season with a continual cloudless sky and a very equable temperature.

BULAWAYO. 10th to 13th July, 1957.

On the morning of 11th July Mr. Pinhey and I joined a party of ornithologists who had come for the congress and motored about 25 miles towards the south-west to the Matopo Hills where our first halt was at the historic spot where Cecil Rhodes and other distinguished South African statesmen are buried. The site is known as World's View and indeed lives up to its name, since the hill dominates the landscape which can be seen for a great distance. While we were there, I had the first sight of the local Lepidoptera when a fine *Charaxes pelias* Cramer kept sailing round us. At the same time a small herd of sable antelope appeared in the nearby bush. At an alfresco lunch there were many Pieridae flying, especially the yellow Euremas. Later that day at the Maleme Dam Mr. Pinhey and I saw a lot of *Acraea* including *A. encedon* L. A grand white-headed fish eagle perched in a tree quite near.

Mr. Pinhey suggested we should have a whole day's excursion into the wilds the following morning, so we set out at an early hour again heading in the direction of the Matopos. We motored some 40 miles through very rough savannah country till we came to a remote locality known as the Umtshebezi Valley. This is a small rift-like cleft which we gradually descended by an easy slope. When we reached the bottom after about a mile on foot, the cliffs presented a most remarkable appearance with large pillars of rock perched on the edge and seeming to be balanced in a most sinister manner. A small stream ran along the bottom of the valley and we were soon able to appreciate the wealth of the lepidopterous life of which Mr. Pinhey had already had experience in this spot. While examining the long grass bordering the stream, suddenly a small dark insect fluttered out. To our delight it proved to be the Satyrid butterfly *Ypthima mashuna* Trimen, regarded as one of the rarest species in the southern half of Africa and only found in very few localities in the Rhodesias. But we only saw and caught two other good examples. As we penetrated further along the valley towards the middle of the day more and more butterflies appeared. The genus *Precis* was well to the fore, in particular *P. archesia* Cramer together with *P. clelia* Cramer and *P. cebrene* Trimen. Suddenly from a patch of damp sand a huge orange and black butterfly rose. It was a female of *Charaxes candiope* Godart. After over a further mile of walking we settled down for lunch in the shade when Mr. Pinhey was startled to see a fine *Pseudacraea boisduvali* Doubleday f. *trimeni* Butler sail by. It was a new record for the region. A minute later a black and white *Charaxes achaemenes* Felder settled on a tree trunk, but flew off eluding capture. Among many other butterflies seen the pierids were represented mainly by *Catopsilia florella* F., *Mylothris chloris* F. f. *agathina* Cramer, *M. poppaea* Cramer f. *rueppelli* Koch, *Colotis eris* Klug, *Terias brigitta* Cramer, *Anaphaeois aurota* F. and the black and white *Picacopteryx eriphia* Godart. Species of the genus *Acraea* included *A. encedon* L. and *A. calderena* Hewitt, together with the well-known Guinea Fowl butterfly *Hamanumida daedalus* F. *Danaus chrysippus* L. was everywhere with a number of lycaenids which included *Syntarucus telicanus* Lang, *Deudorix antalus* Hoppfer, *Euchrysops malathana* Boisd. and *Castalius calice* Hoppfer. The only Hesperids observed were *Pelopidas borbonica* Boisd. and *Gegenes niso* L. We were back in Bulawayo by the middle of the afternoon very well pleased with our day's harvest.

After spending 12th July visiting the Museum in Bulawayo I embarked on the night train to do the journey of nearly 300 miles northwest to the Victoria Falls which I reached on the following day in the early afternoon.

VICTORIA FALLS. 14th to 23rd July.

On reaching the station, which is immediately outside the superbly appointed hotel, the roar of the Falls makes itself heard from a mile away, while from the terrace outside the hotel you can get a grand view of the gorge and the famous rail and road bridge over it which links Northern and Southern Rhodesia. The first view of the Falls is indeed awe-inspiring, watching amid the spray on the edge of the precipice the immense volume of water from the mile-wide Zambesi plunge 400 ft. into the chasm and make its way out through the extremely narrow gorge. It is one of the greatest natural wonders of the world. During our week's stay in these wonderful surroundings most of the 200 delegates to the Congress went to and fro by bus across the bridge to Livingstone some eight miles away where the sessions were held. As soon as the sun got really warm, about 11 a.m., butterflies in plenty began to get on the wing on the open ground in front of the Congress Hall, so that some profitable collecting was possible during the intervals. *Papilio demodocus* Esper. was one of the commonest species as it sailed about the high trees and bushes, while as usual *Danaus chrysippus* L. was equally plentiful. Acraeas were also well to the fore, among them *Acraea anemosa* Hewitson. On 17th July I had the very good fortune of spotting and catching f. *alboradiata* Auriv., a form of this species with large white splashes on all wings. This insect is quite a prize as it has only been obtained in the immediate vicinity of the Victoria Falls. At about 4 p.m. on the 18th Mr. Plowes, one of the delegates, invited me to accompany him to see what the baits he had suspended in the bush might have attracted. These traps consisted of a small wooden platform on which was placed some banana mush beneath a net hung from a branch. The insects attracted to the fruit flew up into the bag of the net where they could be easily dealt with. On this occasion the best capture was two females of *Charaxes guderiana* Dewitz, a grand purple butterfly with a broad white band across the wings. Flying freely in the shade of the bush was the ochreous satyrid *Henotesia simonsii* Butler. But possibly the best locality in the area for butterflies was the garden of the Victoria Falls Hotel. The flower beds were abounding with insects, but showing a predominance of *Catopsilia florella* F. with many of the yellow females. The very striking *Colotis eris* Klug with its black and red wing-tips was dashing about in numbers, while many of the *Precis* species were also in plenty, especially *P. oenone* L. together with *P. hierta* F. *Danaus chrysippus* L. was as usual in dozens, some having extra white patches on the wings, while the Acraeas were also much in evidence. Col. Mackworth-Praed and I each had the good fortune to catch a further specimen of *Acraea anemosa* f. *alboradiata* Auriv. in the vicinity of the hotel. *Henotesia simonsii* Butler was flying about sporadically in the rain forest round the Falls. Besides the Lepidoptera the whole region was alive with big game. There were elephants on the islands along the Zambesi which also harboured many hippopotami and crocodiles. Troops of baboons and other kinds of apes and monkeys were roaming about even in the hotel grounds, while on an air trip over the local bush I saw large numbers of antelope, zebra, giraffe and hartebeeste.

During my ten days in these grand surroundings I made a point of surveying the haunts of the lepidoptera between mid-day and 2 p.m., the best period for their appearance. By 4 p.m. in these latitudes most of the butterflies had already ceased flying. I had for a long time wanted to visit the Belgian Congo and with some trouble had managed to get the necessary visa and other documents for entering this huge territory of nearly a million square miles. Accordingly on the morning of 23rd July I set out by train with M. and Mme Olivier of the Congress on the long journey of some 800 miles. The line is most tortuous and hence the train could seldom gather a speed of more than 30 miles an hour. We made our way from Livingstone through unending bush country, reaching the capital of Northern Rhodesia, the large town of Lusaka, about midnight. By the early hours of the morning of the 24th we were at Ndola, the northernmost limit of the British territory. Here we entered the Belgian train and in a few miles had crossed the border into the Congo, having a considerable wait at the small frontier station of Sakania while our papers were examined. We travelled on a further 150 miles to Elizabethville, the second largest city in the Congo, arriving at a late hour, when we were met by the eminent Belgian entomologist, Dr. Charles Seydel.

ELIZABETHVILLE. 26th July to 2nd August.

The following morning, 26th July, I visited Dr. Seydel in his villa on the outskirts of the town where he runs a moth trap which has attracted a large variety of Lepidoptera, including many new to science.

Later that morning I went out with his boy on the edge of the bush. Butterflies were numerous with a great variety of species. The Pieridae were prominent with several species of *Mylothris*, most notably *Mylothris chloris* F. and *M. poppaea* Cramer f. *rueppelli* Koch. The bushes along a stream seemed to be the chief source of attraction. Round these were sailing a number of *Neptis agatha* Cramer, while on a damp stretch of sand I spotted a grand purple and black male *Charaxes guderiana* Dewitz which kept on flitting around and just eluded my efforts to catch it. Later that day I accompanied the Oliviers to another part of the town, near the local Museum, where a shady spot seemed a resort for members of the genus *Precis*. Most interesting among our captures was *Precis artaxia* Hewitson, a grand insect with blue and lilac splashes on its large forewings. This species has the habit of flying short distances and nearly always alighting in a shady site. *P. actia* Distant was much in evidence and we also caught *P. archesia* Cramer and *P. antilope* Feisthamel. Acraeas were in plenty in this locality, nearly all *Acraea natalica* Boisd.

During the next few days I confined my attention to a small area of bush near the old airfield and not far from the well-appointed Sabena Guest House which was my headquarters after the first three days in an hotel in the central area. This terrain, well in the wilds, harboured a splendid assortment of butterflies which were nearly always in greater quantity about mid-day. Among the many Pierids seen and taken were *Belenois zochalia* Boisd., *Belenois thysa* Hoppfaer, *Colotis vesta* Reiche, *Dixeia pigea* Boisd. and the yellow *Terias brigitta* Cramer. There was a shady path which I dubbed "Precis alley", since it was patronised by so many of the genus. Again isolated specimens of *P. artaxia* Hewitson appeared here, and on 1st August I took the much more local *P. touhilimasa* Vuillot, a most handsome insect with much more purple on the wings than *P. artaxia* Hewitson. I caught further examples of the species of *Precis* already mentioned as well as *P. sophia* F. and *P. terea* Drury. *Neptis agatha* Cramer was very abundant in this region. Besides *Acraea natalica* Boisd. I took *A. caldarena* Hewitson, *A. terpsichore* Talbot, and *A. atolmis* Westw.

A feature of this part of Africa was the huge hillocks, sometimes quite 20 ft. high made by the termite *Macrotermes goliath* Sjöstedt. They are reputed to be many hundred years old and are of a concrete-like texture. For the last five nights I was at Elizabethville I ran the mercury vapour light which Mr. Pinhey had made for me at Bulawayo. This apparatus I fitted up outside my suite at the Sabena Guest House. In spite of the dry season quite a number of moths were attracted. Among the first was a huge *Daphnis nerii* L. By far the most interesting species recorded was an example of the catocalid *Speiredonia griseisigna* Hampson of which very few specimens are extant. Other insects noted included the notodontid *Bocula melochroa* Hampson, the drepanid *Ctenogyne natalensis* Felder and the noctuids *Achaea catella* Guen. and *Parallelia torrida* Guen.

After a very pleasant week in these delightful surroundings and with a fair harvest of Lepidoptera I set out by air early on 2nd August to cover the 800 miles to Usumbura, capital of the Trust Territory Ruanda-Urundi, which lies at the head of the 450 mile long Lake Tanganyika. I was glad when we left this town about mid-day, as the thermometer was standing at 95° F. in the shade. I flew a further 100 miles to the fine town of Bukavu at the southern end of Lake Kivu. I stayed overnight there and then made the 120 mile journey across the lake in five hours in a very fast launch reaching Goma at the northern end about lunch time.

KISENYI, Lake Kivu. 3rd to 12th August.

Kisenyi is only a mile from Goma, but just in Ruanda-Urundi. Along this part of the lakeside are rows of palms with beds full of luxuriant and scented flowers interspersed with large villas, altogether a most enchanting part of the tropics, only 150 miles south of the Equator and dominated by a huge active volcano with several others in the vicinity. At the very nice Bugoyi Guest House I again had facilities for running my mercury vapour light, which produced a good harvest nightly. By day I made expeditions mostly on foot in the neighbourhood of Kisenyi and Goma. One of the most productive areas was along the strand of the lake. Many fine butterflies were disporting themselves here, including *Papilio nireus* L., *Hypolimnas mysippus* L. and the huge *Amauris hecate* Butler, together with the ever prevalent *Papilio demodocus* L. On 4th August a patch of rough ground in the direction of Goma was dancing with the small black and yellow *Acraea acerata* Hewitson, while a path on the edge of some marshy land at the back of the villas was a scene of a lot of lepidopterous activity. One spot I knew as "Byblia corner", since a few low bushes were smothered with the fine red nymphaline *Byblia acheloia* Wallengren. Dozens of these handsome butterflies were wont to sun themselves on the leaves and it was even possible to pick them up by hand. Another striking member of the family which haunted this area was *Eurytela dryope* Cramer which sailed low over the vegetation. The satyrids were represented mainly by the small blue-grey *Ypthima albida* Butler, while the most prevalent of the lycaenids were *Euchrysops malathana* Boisd. and *E. osiris* Hoppfer. The chief hesperids were *Pelopidas thrax* Hübn. and *Borbo fallax* Gaede.

Early on 8th August I made an expedition in a hired car which was to prove the highlight of my stay. We travelled some 20 miles along rough and tortuous roads on the east side of Lake Kivu in the direction of Kibuyi till we came to a stretch of virgin tropical forest at the foothills of some of the volcanoes which harbour gorillas. This locality, known as the Konanga Forest, was alive with Lepidoptera up till the middle of the day when a thunderstorm intervened. I have never seen such a wealth of butterfly life and it was impossible to catch them quickly enough and then only along the road, since the vegetation was quite impenetrable. The most outstanding species was the black and red *Acraea amicitiae* Heron which has a very restricted range in the equatorial regions. This insect was sitting about in hundreds in the roadway so that it was difficult not to tread on them. Other species of this family seen on this occasion were *Acraea pharsalus* Ward and *A. asboplintha* Karsch together with the black and orange *Bematistes quadricolor* Rogenhofer. Two interesting nymphalines were *Antanartia schaenia* Trimen, which looks rather like a tailed Red Admiral, and the drab-coloured *Ergolis pagenstecheri* Suffert. Up and down the road were sailing the danaids *Amauris echeria* Stollmeyer and *A. ellioti* Butler. Flitting round the high-flowering bushes were many lycaenids among which I was fortunate enough to take *Hypolycaena jacksoni* Bethune Baker, one of the rarest of this genus together with the little black and white *Cupido margaritaceus* Sharpe, which was flitting about the lower bushes. Another similarly coloured lycaenid was the larger *Spalgis lemolea* Druce. Among the many pierids on the wing was the striking black and yellow *Mylothris sagala* Grose-Smith f. *jacksoni* Sharpe.

Besides this wealth of butterflies I also had the opportunity of sampling the night activity of the insects with a mercury vapour light which I ran nightly at the hotel from dusk, at 7 p.m. till about midnight. It was at this period that the moths seemed most active and on each occasion I had quite a good variety of visitors with almost all the chief families represented. Among the most spectacular were several species of huge saturniids of which a female of *Lobobunaea* *phaedusa* Drury had an expanse of 8½ inches. Another fine member of this group was the tailed *Rothschildia ploetzi* Ploetz. One of the largest of the lasiocampids was a huge-bodied female of *Pachyposa subfascia* Wkr. The arctiids were well to the fore each night. Of these by far the most striking were a number of *Utetheisa callima* Swinhoe, rather larger than *U. pulchella* L. There was also *Diacrisia sciona* Oberth., *Creatonus leucanioides* Hall and *C. neurophaea* Hampson. Among the more interesting Notodontidae was *Bocula melochroa* Hampson, while the only member of the Westermaniinae was the bright green *Lophocrania phoenicochlora* Hampson. Of the many noctuids there were several species of the small Ozarbas of which *Ozarba rosescens* Hampson was considered quite a rare insect. Of the geometers the Emeralds are always much in evidence in Africa. Among these was the exquisite pale blue-green *Trimetopia aetheria* Guenée and also the more brilliant *Comibaena leucospilata* Wkr. Each night I had quite a visitation of males of a species of psychid. This insect turned out to be a most important capture, *Eumeta rougeoti* Bourgogne, of which apparently only fifteen examples had ever been recorded.

Besides the Lepidoptera the bird life along the lake shore was fascinating with crowned cranes, egrets, cormorants and open-billed storks. It was therefore with a heavy heart that I left this grand spot early on 12th August and after another night at Bukavu I flew on the 13th, several hundred miles over the great Equatorial Forest to Stanleyville on the Congo river, only 20 miles north of the Equator. Here I spent a few hours in tropical heat making a short trip in the vicinity when I was able to appreciate the profusion of insect life in that region. Later that day I embarked on a Sabena airliner and flew 4000 miles to Brussels and on to London, so ending a most delightful and interesting voyage.

BOOK REVIEWS

A Study of Blackbirds. By D. W. Snow. Pp. 192. George Allen and Unwin. Price 21/-.

Of all the birds that are familiar visitors to our gardens, none would seem to catch the eye more than the Blackbird. But who among the large number of our population who have watched their daily antics or listened to their melodious song gives cogent thought to the general way of life of these attractive creatures? There have been quite a number of books written about Blackbirds in various European countries, but it is most refreshing to find someone who has made a careful study of them in a very restricted area. For the author who at the time was a member of the Edward Grey Institute at Oxford chose the Botanic Gardens there for the purpose of his very acute observations. He has covered every aspect of the life and behaviour of a few pairs of these birds, ringing the nestlings each year and then mapping out their subsequent existence and fate. An important point he makes is the manner in which each sex divides up the territory for feeding, etc., and he shows very convincing maps to illustrate this habit. Plumages and moults which have given trouble to experienced observers are very clearly dealt with and many somewhat puzzling questions are analysed and a lucid explanation given, such as why the bird breeds from the middle of March to the end of June, rather than from the middle of April till July, also why the egg clutch tends to be greater in northern than in southern Europe. There are chapters covering feeding habits and song at different periods of the year, while others deal equally effectively with courting displays and fighting postures. Again a large portion of the book is devoted to the nesting problem. A very comprehensive list of references is given in conclusion and the many small text drawings by Robert Gillmor are most life-like. The whole work is altogether a most delightful and readable study, very well presented, which should commend itself to all interested in bird lore. C. G. M. de W.

Beetles of the British Isles. By E. F. Linssen. Frederick Warne & Co. Ltd., London. Vol. I, 300 pp., 39 plates (19 in colour) and 58 text figures; 30/-. Vol. II, 295 pp., 87 plates (44 in colour) and 13 text figures; 30/-.

In a work of this kind, written for the general naturalist and the incipient coleopterist, it is very easy for an experienced coleopterist to find faults. Many of these, in view of the readership the work is intended for, are of a minor character. However, there is little doubt in your reviewer's mind that the author has made a major mistake in his assessment of Crowson's work. This has led him into looking backwards to Fowler for his standard work instead of forward to the Royal Entomological Society's *Handbooks for the Identification of British Insects*; some of which he has even failed to consult. Attendant upon this are the frequent nomenclatorial explanations and the fact that it has placed him at variance with another, very important, standard work—Imms, *General Textbook of Entomology.*

This apart, the volumes will constitute a valuable introduction to the order, comparable with, but far better for its purpose than, Rye's *British Beetles.* The superfamily and family composition is clearly set out at the beginning of each chapter on the particular superfamily and the characteristics competently detailed together with information on the habits and life history of some of the species within the group, one could wish though, that attention was concentrated on the commoner examples both in the text and the figures. The preliminary chapters deal successively with structure, metamorphosis, distribution, social behaviour, and nomenclature and classification. It is doubtful though, if the author's assertion, "It is quite erroneous to suppose that any beetle can be named straight from a book by a dichotomous system, by a person who does not possess some general knowledge of its position in the order", is correct. Rather could one say it is unsafe to name beetles without a key to the reliable characters until one has a general knowledge of the order. However keys to the families are given in the case of the Adephaga and to superfamilies in the case of the Polyphaga; the value of the latter would have been considerably increased had they been extended to include families as in the case of the former—as the keys stand it is certain that some of the Silphidae will be determined as Clavicornes by the inexperienced readers.

It must by now, and these volumes will underline the fact, be obvious that four-colour letterpress printing is not the way to figure Coleoptera. Most of the coloured plates, which are excellently printed, do not accurately illustrate their subjects. In the main the reds and yellows are at fault, and the shinier insects more successful than the dull, but this is not true in every case. The illustrations could, it is felt, be more effectively, and perhaps less expensively, accomplished by the use of good line figures as used by Pierce and Britton in the Handbooks.

In spite of the adverse comment on the classification and the plates the books will be of much interest to the experienced coleopterist as well as the field naturalist and the beginner. F. D. Buck.

A Guide to the Study of Lichens. By Ursula K. Duncan, M.A. 8¾″ × 5¾″, pp. xxvii, 164, 19 plates. Arbroath, Angus (T. Buncle & Co. Ltd.). 1959. Price 25/-.

The arrival of a good book on the British Lichens is a welcome event and, if we exclude the Mycetozoa, fittingly completes the group of botanical works issued in Britain since the last war. How true it is that British books on Lichens were, until now, outdated and "difficult to obtain"! Indeed the latter description is an understatement for I know of no legal way of obtaining a copy of Part I of the British Museum Monograph.

The present work is packed with useful information and covers all, and more than all, the species likely to be met. Incidentally there are, according to W. Watson's Catalogue of British Lichens, no less than 1,467 species. The text is so written as to be useful to anyone collecting in any part of the British Isles, even to the poor southerner working in the Home Counties. Admittedly the area near London is far from being the best in these islands but it is clear from the book that there are plenty of species to be found. One emphasises this because the excellent plates have a distinctly Scottish flavour and one of the few English localities represented by a plate is Dartmoor! No doubt the reason for so many of the species figured being from Angus is merely that it suited the convenience of the author.

It is, perhaps, a pity that a reference to the relative plate is not given with the description of the species but it is very easy to see if there is a figure by turning to page vi, Index of Plates.

The heading to pages xix to xxvii should be "Key to Genera" and not "Key to Families".

But there is little of substance to criticise in this valuable book.

How should it interest the Entomologist and, particularly, the Lepidopterist? There are nearly 40 species of moths in Britain (macros and micros) whose larvae feed on lichens and some are said to feed on algae. One has an uneasy suspicion that the so called algae are in fact small crustaceous lichens. Be that as it may, it would be of value to science and perhaps also to the larva collector if there were more precise information about the larval pabula of the various species. It would almost certainly be found that some larvae confine their attention to one genus or even to one species.

The book is well bound in cloth and well printed.

T. R. EAGLES.

Bumblebees. By John B. Free and Colin G. Butler, 8½" × 5½", pp. i-xiv and 1-208, 25 plates (1 coloured), 3 text figures. London. Collins, New Naturalist Series, No. 40. 1959. Price 25/-.

This is a most welcome addition to the already well-known New Naturalist Series, and in it, the authors have dealt in a very interesting way with the numerous aspects of our native Bumblebees. To those of us who are familiar with the sight and with the sound of these industrious little creatures as they visit our flowers, both in the garden and out in the countryside, the information contained in this book will supply a long-felt want; and though it may be true that there are other publications on this subject, they are scarce or out of print.

The authors, who are both on the permanent staff of the Bee Department at Rothamsted Experimental Station (Dr. Butler is, in fact, Head of the Department), have successfully compressed much of the knowledge resulting from their own researches, and those of other authorities, into about 200 pages; and have done it in such a way that the whole forms a fascinating account of the habits, behaviour, distribution and biology of the British species. Some brief reference has also been made to some European and American species for comparison with ours. Of particular interest are the chapters on Cuckoo Bumblebees, The Enemies of Bumblebees, and on the relation between Bumblebees and flowers, and on Foraging habits.

A most important feature is the demonstration that Bumblebees can be kept and studied in captivity. Most of this is given in Appendices I and II, and directions are there given for starting or the capture of colonies and for their subsequent observation and study. Many experiments are described, and as a result of reading about them one becomes enormously impressed with the marvellous patience displayed by the authors, and by others, in overcoming the various difficulties which must attend such work.

In addition to the descriptive text and the two appendices mentioned above, there are two more Appendices (III and IV) by Dr. I. H. H. Yarrow, of the British Museum, Natural History. Appendix III is a key for the identification of the British species of Bumblebees. This also contains a glossary of technical terms used in the descriptions, and the key proper is divided into five sections dealing with (i) Sex and Genus, (ii) Bombus Queens and Workers, (iii) Bombus males, (iv) Psithyrus females, and (v) Psithyrus males.

Appendix IV gives an account of the distribution of the British species together with a short description of each. There can be no doubt whatever that these two appendices by Dr. Yarrow will prove a great help to the beginner studying these insects.

Mention must also be made of the really remarkable photographs with which the book is illustrated. Here indeed are the results of true patience.

Finally there are two indices; one is a General Index and the other an Index of Authors quoted in the text and in the very complete Bibliography supplied.

To sum up, one has to acclaim this book as a very fine effort, and it will indeed be surprising if the number of students of our Bumblebees does not increase greatly as a result of its publication. Considering the scientific value of its contents, it is not expensive at the price.

H. D. SWAIN.

Key to the Names of British Butterflies and Moths. By R. D. Macleod. 9″ × 5½″, 86 pp. London. Sir Isaac Pitman & Sons Ltd. Price 15/-.

This book consists of an excellent 'introductory' of 11 pages giving the reason for publication and with headings entitled the form, pronunciation, gender, origin and analysis of scientific names, 62 pages of scientific names arranged alphabetically within their genera and the genera arranged in a like manner, and 10 pages of common names, each list of names being divided into three headings: butterflies, macro- and micro-moths.

It was the primary aim of the author to give the correct meaning of the scientific names in current use and also to explain some of the common names where it was felt necessary. The first reason is entirely praiseworthy as no book on this subject has appeared for over a hundred years, and though the meanings of the names are not subject to change. the names themselves are; and of course many additions have been made to our list since the publication by the entomological societies of Oxford and Cambridge of *An Accentuated List of the British Lepidoptera* in 1858.

It is unfortunate that the author, being a classicist rather than a lepidopterist, has allowed his enthusiasm, for finding a reason for, or giving a meaning to, a name, to run away with him in some cases. To give but two examples, on page 35 under the name of *Orgyia antiqua* and *O. recens*, *antiqua* was described by Linneus in 1758 and *recens* by Hübner in 1819 so that it was the latter author who made the distinction between the two species. Almost the same reason applies to the next case, that of *Bapta distinctata* on page 21 where it is stated that this species is distinct from *pictaria* which is actually a synonym of the other. It would also have prevented mistakes such as the complete reversal of the facts regarding the colour of the border in the Camberwell Beauty (page 78) and the Scarbank Gem (page 81) which, according to the author, was originally taken in Scotland but which actually was captured in Swanage, Dorset. Apart from the mistakes and misinterpretations the lack of a specific index makes this book virtually useless without the lists mentioned on page 2, for as the author himself states on page 8, "the transfer, indeed, of a species from one genus to another is frequent" coupled with the fact that many British lepidopterists, though they may know the generic name—not always the most recent—only use the specific or trivial name.

It would have been better to omit the last section entirely rather than include such unused and fantastic coinings as Diakonoff's Case, The Vexed and Congested Pygmies, The Horsebane Angle Flat-body and Virgin Smoke, for the person who is sufficiently interested in the first place to take up the study of the micro-lepidoptera would certainly not be bothered with such names however well chosen they may appear to be.

T. G. Howarth.

The Freshwater Life of the British Isles. By John Clegg. 7″ × 5″, 352 pp., 67 plates (16 coloured), 95 text figures. Second Edition. London. Frederick Warne & Co. Ltd. 1959. Price 21/-.

Members of the South London Entomological and Natural History Society owe a great deal to the Wayside and Woodland Series to which this book belongs. They will therefore expect something well worth while and they will not be disappointed.

Seven years have elapsed since the First Edition appeared. While it is true that the number of pages, plates and figures remains the same there are, nevertheless, important changes. For example, five of the coloured plates (Nos. 11, 17, 44, 52 and 55) have been replaced by new ones which deal with plants and animals and which will be much more useful to the average field naturalist. The new coloured plate No. 55 of Mussels, Orb-shells and Pea-shells in particular is most attractive. It is a pity perhaps to lose the old plate 55 part of which showed two enthusiasts "Examining the catch in a shallow dish". Luckily the other part of the plate with the lady in a red jumper "Examining a small plankton net for specimens" is not lost to us for it now graces the jacket. Some of the text figures have been altered and improved, notably those dealing with Rotifers.

The scope of the book is altogether amazing, recalling vividly the fact that life originated in the water. It deals with practically every section of the plants and the invertebrates and touches on the vertebrates. One of the difficulties of the study of freshwater life is that it involves a wide knowledge because in a single catch there may be representatives of several phyla of animals. The author in his endeavour to meet the difficulty is all the time wondering what to put in and what to leave out. Here the choice seems to have been successfully made. It would be easy to suggest matter that might have been included but the size and the cost of the book set a limit. This remark applies not only to the contents but also to the bibliography. The latter is helpful and not overloaded with obsolete or unobtainable works. It is perhaps a pity that there is no mention of the Handbooks for the Identification of British Insects published by the Royal Entomological Society of London. A few of these should be of value. The student of the early stages of dragonflies (and one soon encounters the nymphs) ought to be made aware of the pioneer work of A. E. Gardner appearing in our Transactions and in the Entomologist's Gazette.

But the book is excellent and the publishers are to be congratulated on producing an improved issue without an increase in price—a feat rare in these days.
T. R. Eagles.

Excursion Flora of the Britsh Isles. By A. R. Clapham, T. G. Tutin and E. F. Warburg. 7½″ × 5″, pp. xxxiii, 579, 39 drawings to illustrate the glossary. Cambridge, at the University Press. 1959. Price 22/6.

A reliable and up-to-date field flora convenient for pocket or satchel and sufficiently complete to meet the needs of all but the most advanced workers is to be welcomed.

Although specially designed "for the student and keen amateur botanist" it should have a wider appeal.

Now, with the emphasis on ecology in the field of natural history, no worker, whatever his subject of study, can afford to be ignorant of the plant-life he contacts.

Indeed many a useful observation can be rendered valueless by the failure to identify accurately an associated plant.

Entomologists particularly should find this book a valuable help and as for botanists, young in age or experience, the use of this authoritative work will cultivate a habit of careful and exact observation invaluable when they advance to more serious study.

Descriptions condensed from the larger Clapham, Tutin and Warburg Flora are concise and adequate, and where critical species or greater rarities are involved there is always a clear indication in the text.

There are useful keys to the families and a very full glossary of botanical terms.

Well bound, clearly printed and indexed, the Excursion Flora, carrying all the authority of the standard Clapham, Tutin and Warburg Flora, is excellent value. W. H. S.

Insecta Helvetica. Fauna Vol. 1, Plecoptera. By Jacques Aubert. 1959. 140 pp., 456 line drawings. Published by the Swiss Entomological Society. Lausanne.

This is the first of a series of volumes dealing with the identification of the insect fauna of Switzerland. It is intended to publish parallel volumes known as the *Catalogues* which will complete those of the *Fauna* series by giving detailed information on geographical distribution and ecology.

In the volume under review 24 pages are devoted to the ecology, life history, general morphology and methods of collecting and preserving Plecoptera. Keys are provided for identification down to specific level, and are followed by a brief description of each species. The numerous line drawings are well executed and do not suffer from drastic reduction, always an important feature where minute differences in structure are involved.

The Swiss fauna contains a great variety of species of great geographical and ecological interest on account of the altitude and climatic variation. These volumes written in the language of the author (German, French and Italian) should find a ready sale to all specialists. They can be obtained directly from the Swiss Entomological Society or one can subscribe to the series receiving the parts as published, alternatively copies can be obtained through booksellers at normal published prices.

All concerned with this work are to be congratulated on the production of what must surely be an important addition to our knowledge of the Swiss fauna. A. E. Gardner.

ERRATA—1957 Vol.

Plate III, facing p. 63. Instead of Challock, Kent, the caption should read Orlestone Woods, Ham Street, Kent. At the end of the second row the name S. Wakely should read Sir Leonard Wakely.

Page 46, line 10. (Lep. Coleophoridae) should read (Lep., Epermeniidae).

INDEX

PAGE

Albinism 44

Asymmetry Pl. II, fig. 6, 32, 35, 44

Book Reviews:

- Beetles of the British Isles, by E. F. Linssen 132
- Bumblebees, by John B. Free & Colin G. Butler 134
- Excursion Flora of the British Isles, by A. R. Clapham, T. G. Tutin & E. F. Warburg 137
- Freshwater Life of the British Isles, by John Clegg 136
- Guide to the Study of Lichens, A, by Ursula K. Duncan 133
- Insecta Helvetica (Plecoptera) by Jacques Aubert 138
- Key to the Names of British Butterflies and Moths, by R. D. Macleod ... 135
- Study of Blackbirds, A, by D. W. Snow 132

Dwarfs 24

Errata, 1957 vol. 138

Field Meetings:

- Alice Holt Forest 76
- Banstead Woods 82
- Benfleet 81
- Betchworth 79
- Bookham 81
- Box Hill 65
- Burnham-on-Crouch 78
- Chiddingfold 67
- Chipstead 76
- Chobham 68
- Cosford Mill 78
- Druid's Grove 80
- Eashing 66
- Folkestone 73
- Halling 73
- Ham Street 71
- High Halstow 74
- Mickleham 82
- Ockham 66
- Otford 77
- Oxshott 65, 78
- Pulborough 69
- Sandwich 71
- Shoreham 70
- Whippendell Wood 73
- Wrotham 68

Gynandromorphs 23, 39, 42, 44, 47

Homoeosis Pl. II, fig. 2, 32, 35

Intersex Pl. II, fig. 1, 28

Melanism 9, 29, 30, 31, 34, 40, 45

Papers published—see Contents, page ii.

Papers read but not published:

- "Collecting Insects in New Guinea and the Pacific"—Dr. E. Munroe ... 4
- "Mites associated with Insects"—G. O. Evans 9
- "Some aspects of Animal Behaviour"—Dr. M. Burton 10
- "Some British Marine Fishes"—G. Palmer 7

PAGE
"Some effects of climatic conditions on insects in the laboratory and in the field"—Dr. K. Mellanby 48
"Structure of the reproductive system and sperm transference in Lepidoptera"—Dr. H. E. Hinton 16
"Webs of Spiders, The"—T. H. Savoury 2
"Wild Life in North America"—Prof. A. Klots 12
Pollinia 12

PAGE
BACTERIA
tumefaciens, Agrobacterium 2

BIRDS
Blackcap 66, 67, 69
Chiffchaff 66, 67
Cole-Tit 65
Cuckoo 67
Goldcrest 65, 66
Lesser Spotted Woodpecker 13
Long-tailed Tit 73
Marsh Tit 65
Missel-Thrush 65
Nightingale 67, 68, 69, 72
Nuthatch 65
Stock Dove 65
Teal 66
Tree Creeper 66
Waxwing 49
White-headed Fish Eagle 123
Whitethroat 67
Willow-Warbler 66, 67

COLEOPTERA
abbreviatus, Scarites 28
acuminatus, Agriotes 71
aenea, Amara 74
aeneocephala, Ocypus 75
aerata, Batophila 75
affinis, Megarthrus 75
alauda, Cionus 74
alni, Rhynchaenus 75
alpinus, Hadrus 28
angusticollis, Ernobius 58
Anitys 62
Anobiidae 52, 53, 62
Anobiinae 59
anobioides, Dryophilus 56
Anobium 59
assimilis, Ceuthorrhynchus 74
ater, Xyletinus 62, 63 (figs. 17 and 18)
atricapilla, Atomaria 75
atripes, Lagria 10, 72
atroapterus, Otiorrhynchus 71
attelaboides, Rhinomacer 12
aulica, Amara 75
auritus, Scymnus 75
bajulus, Hylotrupes 1

PAGE
banksi, Chrysolina 47
bedelianus, Pterostichus 28
biabilis, Adalia 75
bipunctata, Adalia 75
bipustulatus, Rhizophagus 65
boleti, Scaphisoma 75
Bostrichidae 52, 62
Bostrichidae 52, 53
bovistae, Caenocara ... 63 (figs. 21 and 22), 64
brevicollis, Nebria 75
brevicornis, Oxypoda 75
brunnipes, Stenus 75
Caenocara 62, 64
californicus, Henoticus 48, 49
campestris, Cicindela 66
canaliculata, Drusilla 75
capucinus, Bostrichus 53
capreae, Lochmaea 72
capricornis, Noterus 82
caricis, Telmatophilus 12
cervinus, Dascillus 74
cervus, Lucanus 11
cheiranthi, Lixus 28
chrysomelina, Dorcatoma 64
circumflexus, Dytiscus 82
clavicornis, Stenus 75
cognatus, Philonthus 65
collaris, Mecinus 78
communis, Amara 65
congener, Agabus 12
convexiuscula, Amara 82
coriarius, Prionus 79
costatus (=fuscus), Ptilinus 62
Cryptophagus 48
Dendrobium 59, 61
denticolle, Dendrobium ...... 59, 60 (figs. 13 and 14), 61
Dermestidae 53
Dermestoidea 53
dermestoides, Pediacus 12
Derodontidae 53, 62
Dorcatoma 62, 64
Dorcatominae 62
domesticum (=punctatum) Anobium 59
dresdensis, Dorcatoma 64
Dryophilinae 55
Dryophilus 55, 56
eichoffi, G. excavatus, var. 55
Eledona 62

PAGE
emarginata, Lomechusa 12, 13
Ernobiinae 56
Ernobius 56, 58
ervi, Apion 74
excavatus, Grynobius ... 54 (fig. 2), 55, 75
exoletus, Longitarsus 74
fagi, Rhynchaenus 9
fasciatus, Malthinus 75
fastuosa, Pilemostoma 65
ferrugineum, Cerylon 65
flavescens, Drilus 75
flavicornis, Dorcatoma 64
flaviolus, Malthinus 75
flavipes, Polydrusus 72
frumentarius (=haematodes) Apion .. 75
fullo, Polyphylla 1
fulvicorne, Anobium 59, 61
fulvipenne, Lathrobium 75
fungicola, C. luteus, var. 10
Furniture Beetle 52
fuscus (costatus) Ptilinus 62
Gastrallus 59
germanicus, Caenorhinus 75
glandium, Curculio 75
gracilipes, Pterostichus 28
gregarius, Nesarpalus 28
griseus, Sitona 71
Grynobius 55
guttata, Megacyllene 3
guttula, Bembidion 75
hederae, Ochina 56
haematodes (frumentarius) Apion ... 75
haemoptera, Chrysolina 71
haemorrhoidalis, Athous 74
haemorrhoidalis, Cercyon 75
Haplocnemus 62
hederae (=ptinoides) Ochina ... 54 (fig. 4), 56
Hedobia 53, 55
Hedobiinae 53
heeri, Calobius 28
Henoticus 48
hirtus, Athous 75
histrio, Enicmus 75
humeralis, Mordellistena 75
hypochaeridis, Cryptocephalus 75
imperialis, Hedobia .... 53, 54 (fig. 1)
impressa, Corticarina 75
kiesenwetteri, Grynobius 55
kirbii, Catops 65
labiatus, Cryptocephalus 75
laevicollis, Quedius 75
laevigatus, Gastrallus 59
lanatus, Nilio 4
lanio, Colymbetes 28
Lasioderma 62
latebricola, Staphylinus 75
laticollis, Baris 74
laticollis, Phyllodecta 10, 72

PAGE
laticornis, Agrilus 75
latus, Harpalus 65
limbata, Rhagonycha 75
linearis, Dromius 82
littoralis, Paederus 75
livens, Agonum 6
livida, Leptura 75
longicornis, Cypha 75
loti, Apion 74, 75
lumbaris, Meligethes 75
lurida, Oedemera 75
luteus, Cychramus 10, 72
Lyctidae 52
maculata, Strangalia 75
maculipennis, Derispia 4
maderae, Calosoma 28
maderae, Cymindis 28
maderensis, Odontonyx 28
marchicum, Apion 75
melanopa, Lema 75
menthrasti, Chrysolina 79
mercurialis, Hermaeophaga 65
mollis, Ernobius ...... 52, 57 (figs. 7 and 8), 59
mulsantianus, E. mollis, var. 58
murina Isomira 74, 75
nigricornis, Ctenicera (Corymbites) 10, 72
nigrinus, Ernobius 58
nobilis, Oedemera 75
Nosodendridae 53
obesus, Calathus 28
oblitus, Ernobius 58
Ochina 56, 62
Omolipus 23
ononis, Apion 74
orichalcea, Chrysolina 75
pallida, Cantharis 71
palustris, Notiophilus 75
panaceum, Stegobium ... 57 (figs. 9 and 10), 59
paradoxa, Lomechusa 13
parallelipipedus, Dorcus 66
parvicollis, E. angusticollis, var. ... 58
parvulus, Phyllobius 75
pauxilla, Cyrtusa 74
pectinicornis, Ptilinus ... 60 (figs. 15 and 16), 62
pedicularius, Anthonomus 75
perforatus, Rhizophagus 65
picipes, Quedius 75
picirostris, Miccotrogus 74, 75
pilosa, Cryptophagus 75
plagiatus, Philopedon 71
planirostris, Rhinosimus 75
planiusculus, Meligethes 74
planus, Grynobius 55
planus, Hydroporus 82
pleurostigma, Ceuthorrhynchus 75

PAGE
pollinarius, Ceuthorrhynchus 75
populi, Byctiscus 10, 72
posticus, Phytonomus 82
Ptilininae 61
Ptilinus 61
Ptinidae 52, 53
ptinoides (hederae) Ochina ... 54 (fig. 4), 56
Ptinus 53
punctatum (striatum) Anobium 52, 59, 60 (figs. 11 and 12), 61, 62, 75
pusillus Cryptocephalus 75
pusillus, Dryophilus ... 55, 54 (fig. 3), 56
pyrrhoceras, Curculio 75
quadrimaculata, A. bipunctata, ab. 75
quadripustulatus, Mycetophagus ... 75
quercus, Rhynchaenus 75
quisquilius, Crypticus 71
reflexum, Apion 75
reversus, E. mollis, var. 58
rubens, Anitys 64
rubens, Apion 75
rubidum, Sphaeroderma 75
rubripes, Harpalus 74
ruficollis, Silis 75
rufifrons, Dacne 75
rufirostre, Apion 75
rufovillosum (tesselatum), Xestobium 52, 56, 57 (fig. 5 and 6), 58
salicivorus, Curculio 75
schaumi, Zargus 28
scrophulariae, Cionus 74
senex, Hesperophanes 28
serra, Dorcatoma 64
serricorne, Lasioderma ... 62, 63 (figs. 19 and 20)
serraticornis, Pyrochroa 74
sexpunctatus, Cryptocephalus ... 10, 72
Sierotrana 23
Sitodrepa (=Stegobium) 59
solutus, Tachyporus 75
sputator, Agriotes 75
Stegobium (Sitodrepa) 59
striatum (=punctatum) Anobium ... 59
striatum, Apion 75
subglobosa, Caenocara 64
tanaceti, Galeruca 81
Teredilia 52
tesselatum (=rufovillosum), Xestobium 56
testaceus, Conosomus 75
Thorictidae 53
tibiale, Melanimon 71
triguttata, Abdera 3
varians, Philonthus 65
vigintiquattuorpunctata, Subcoccinella 75
venosus, Curculio 72, 75
violacea, Chrysolina 65
viridearis, Phyllobius 71
vividus, Calathus 28
vulgaris, Donacia 5
Xestobium 56
Xyletinidae 56, 62
Xyletininae 62
Xyletinus 62

CRUSTACEA

anatifera, Lepas 50

DERMAPTERA

annulipes, Anisolabis 28
auricularia, Forficula 28
forcipata, F. auricularia f. 28
maritima, Anisolabis 28
riparia, Labidura 28

DICTYOPTERA

americana, Periplaneta 28
maderae, Leucophaea 28
orientalis, Blatta 28
panzeri, Ectobius 28
religiosa, Mantis 28
surinamensis, Pycnoscelus 28

DIPTERA

albimanus, Platycheirus 41
alpina, Phytomyza 16
ampulacea, Lucilia 20
Anastrepha 22
anthracinus, Chironomus 21
arbustorum, Tubifera (Eristalis) 42
Atherix 5
atra, Pseudonapomyza 77
balteatus, Episyrphus 41
bicinctum, Chrysotoxum 41
brevirostris, Isopogon 71
bufonivora, Lucilia 20
caesar, Lucilia 20
caesarion, Orthellia 20
campestris (=macrocephala), Rhingia 41
capitata, Ceratitis 23
carnea, Pentaneura 21
centaureae, Liriomyza 77
Cheilosia 81
Cherry Fruit Fly 23
cicerina, Liriomyza 77
cinctellus, Episyrphus 41
citrofasciatum, Xanthogramma 41
cicerina, Liriomyza 77
cinerascens, Gonomyia (Platystoma) 70
clypeatus, Platycheirus 41
Coffee Berry Fruit Fly 22
compositarum, Stenosyrphus 41
consisto (corollae) Metasyrphus 41
corollae (=consisto), Metasyrphus ... 41

PAGE
crabroniformis, Milesia 28
Crocuta (Siphona) 70
cuprina, Lucilia 20
Dacinae 22
Dilophus 69
elegans, Epistrophe 41
erythrocephala, Calliphora 20
falcata, Tipula 71
fasciola, Liriomyza 77
fascipennis, Tipula 70
felleri, Agromyza 77
ferruginatus, Bibio 69
flaveola, Liriomyza 77
flavipes, Limonia 70
florea, Myathrops 42
gibbus, Chironomus (Stenochironomus) 21
granditarsa, Cheilosa (Pyrophaena) 41
hirtimanus, Pentaneura 21
illustris, Lucilia 20
immarginatus, Platycheirus 41
inanis, Volucella 16
interrupta, Ocyptera 72
intricaria, Tubifera (Eristalis) 42
jaceana, Urophora 23
kiefferi (peregrinus) Podonomus 21
latefasciatus, Metasyrphus 41
linearis, Dioctria 72
Lucilia 20
lucorum, Syrphus (Leucozona) 42
luniger, Metasyrphus 41
lutea, Liriomyza 77
macrocephala (campestris), Rhingia 41
manicatus, Platycheirus 41, 70
marci, Bibio 69
masoni, Limonia 70
Mediterranean Fruit Fly 23
mellinum, Melanostoma 41
minimus, Limnophyes (Limnophytes) 21
minuta, Ptychoptera 72
morio, Protanypus (Procladius) 21
mortuorum, Cynimyia 20
nigropunctata, Limonia 8, 70
nivosa, Pseudodiamesa 21
origani, Phytomyza 77
pallida, Crataerina 32
pallipes, Mycetobia 8
parallelus (trivittatus) Helophilus 42 78
pedissequum, Xanthogramma 41
pellucens, Volucella 41
peltatus (=timeo), Platycheirus 41
pendulus, Helophilus 42
peregrinus (=kiefferi), Podonomus 21
pertinax, Tubifera (Eristalis) 42
pipiens, Syritta 42
podagrica, Neoascia 41
prolixa, Rhynchista 73
pulicaria, Melanagromyza 77
punctulata, Trypetoptera 71

PAGE
pusio, Liriomyza 77
pyrastri, Scaeya 41
quadrifasciatus, Conops 42
Rhingia 70
ribesii, Syrphidis (Syrphus) 41
richardsi, Lucilia 20
sagittalis, Protanypus 21
scalare, Melanostoma 41
scripta, Sphaerophoria 41
scutatus, Platycheirus 41
seguis, Zelima (Xylota) 42
sericata, Lucilia 20
silvarum, Lucilia 20
Siphona (=Crocuta) 70
stercorea, Empis 70
subalpina, Acrophaga 20
tenax, Tubifera (Eristalis) 41
tentans, Chironomus 21
terrae-novae, Protiphormia (Phormia) 20
timeo (peltatus), Platycheirus 41
trifolii, Liriomyza 77
Trypetidae 22, 23
tripunctata, Limonia 8
trivittatus (=parallelus), Helophilus 42
varipes, Bibio 69
vernalis, Chilomyia (Cheilosia) 41
verralli, Chrysotoxum 41
vitripennis, Syrphidis (Syrphus) 41
vomitoria, Calliphora 20

EPHEMEROPTERA

torrentis, Ecdyonurus 5

FISH

montagui, Raja (Spotted Ray) 50

FLOWERING PLANTS

acris, Erigeron 82
aculeatus, Ruscus 67
alternifolium, Chrysosplenium 67
angustifolium, Chamaenerion 80
annua, Poa 27
aquatica, Mentha 79
arborea, Bulnesia 3
aria, Sorbus 79
articulatus (lamprocarpus), Juncus 88
arvense, Cirsium 71
Aspen 8, 72
avellana, Corylus 72
aviculare, Polygonum 14
Barren Strawberry 66
Beech 9, 80, 82 83
Birch 69, 82
Black Poplar 14, 18
Blackthorn 27, 78, 82
Bloody Cranesbill 32, 99
Blue Fleabane 82
botrys, Teucrium 76

PAGE
Box 66
Broom 1
Burnet Rose 13
Burnet Saxifrage 79
Butcher's Broom 67
Butterbur 65, 66, 67
Campanula 79
Centaurea 1
chamaedrys, Veronica 25
chamaecistus (vulgaris), Helianthemum 77, 99, 100
chamaepitys, Ajuga 76
Chicory 80
cicutarium, Erodium 67
cineraria, Senecio 49
cinerea, Genista 1
citrina, L. foetidissima var. 10
Common Rockrose 99
Common Violet 67
communis, Juniperus 79
communis, Phragmites 23, 86
conyza (squarrosa), Inula 79
Cornus 70
coronaria, Malus 7
coronopus, Plantago 43
Creeping Thistle 71
Cuckoo Flower 66
Cuckoo Pint 67
cucubalus, Silene 73
Deadnettles 77
decidua, Larix 66
dioica, Urtica 67
Dog Rose 81
Dove's-foot Cranesbill 32
Echium 74
echioides, Picris 81
effusus, Juncus 88
elm 79, 82
eupatoria, Agrimonia 81
European Larch 66
europaeus, Euonymus 15, 74
europaeus, Ulex 1
ficaria, Ranunculus 66
filiculoides, Azolla 11
filix-femina, Athyrium 82
Fly Orchid 69
foetidissima, Iris 10
fullonum, Dipsacus 67
galii, Ulex 1
Gladdon 10
glauca, Kalmia 68
Golden Saxifrage 67
Gorse 1
Great Horsetail 67
Greater Knapweed 71
Greater Stitchwort 67
Gromwell 80
Ground Ivy 66
Hairy Violet 66

PAGE
hawthorn 12, 27, 75
hazel 69, 82
hederacea, Glechoma 66
Helleborus 4
helix, Hedera 67
hirta, Viola 66
holostea, Stellaria 67, 69
hornbeam 69
hybridus, Petasites 66, 67
Hypericum 82
intermedia, Forsythia 2
intybus, Cichorium 80
Inula 65
Iris 87
Ivy 67
Juniper 79
Kidney Vetch 74
Knotgrass 14
Lady Fern 82
lamprocarpus (=articulatus) Juncus 88
lantana, Viburnum 80
latifolia, Typha 23, 79
Lesser Celandine 66
Lesser Knapweed 74
lucidum, Geranium 67
lutetiana, Circaea 80
luteum, Galeobdolon 67
Luzula 67
maculatum, Arum 67
Man Orchid 69
Maple 77
maritimum, Eryngium 71
Marjoram 70
Marram Grass 23
Marsh Marigold 67
Meadow Sweet 71
Milkwort 12, 43, 70
millefolium, Achillea 70
minus, Centaurium 77
molle, Geranium 32
Moschatel 66
moschatellina, Adoxa 66
nettles 77
nigra, Populus 14, 18, 40
nigra, Centaurea 73
Norway Maple 66
nutans, Silene 28
oak 8, 27, 82
odorata, Viola 66
officinale, Guaiacum 3
officinale, Lithospermum 80
Opium Poppy 80
oppositifolium, Chrysosplenium 67
orientale, Symphytum 67
palustre, Cirsium 81
palustris, Caltha 67
Panicled Sedge 67
paniculata, Carex 67

PAGE
parviflora, Impatiens 80
perennis, Mercurialis 65
platanoides, Acer 66
Plum 27
Polygala 12, 69, 70
pratensis, Cardamine 66
prostrata, Genista 1
Primrose 68
Primrose × Cowslip? 68
Privet 6
ptarmica, Achillea 81
Purging Buckthorn 82
Ragwort 16, 30
Reedmace 66, 79
rhamnoides, Hippophoë 71
riviniana, Viola 67
Rockrose 77
Rosebay Willow-herb 80
rotundifolium, Geranium 32
Round-leaved Cranesbill 32
Salad Burnet 92
Sallow 8, 14, 79
sanguineum, Geranium 32, 99, 100
sanguisorba, Poterium 92
sativa, Pastinaca 77
Saw-wort 91
saxifraga, Pimpinella 79
scabiosa, Centaurea 71
Scirpus 86
scoparius, Sarothamnus 1
scorodonia, Teucrium 73
scorpius, Genista 1
Scots Fir 12
Sea Aster 78, 81
Sea Buckthorn 71
Sea Holly 71
Sea Lavender 78, 81
Sea Plantain 78
Sea Wormwood 78, 82
sempervirens, Buxus 66
Shining Cranesbill 67
Small Balsam 80
somniferum, Papaver 80
Spindle Tree 15, 75
spinosissima, Rosa 13
squarrosa (=conyza), Inula 79
sterilis, Potentilla 66
Stinging Nettle 67
Stinking Iris 10
Sweet Violet 66
Sycamore 66, 80, 82
Teasel 67
telmateia, Equisetum 67
tenerum, Phyteuma 77
Thyme 77
tinctoria, Serratula 91, 92, 93
tripolium, Aster 81
Typha 87
ulmaria, Filipendula 71, 90

PAGE
Verbascum 73, 74
Viburnum 70, 72
viridis, Helleborus 4
vulgaris, Artemesia 81
vulgaris (=chamaecistus), Helianthemum 99
vulgare, Origanum 70
vulneraria, Anthyllis 74
Water Mint 79
White Beam 79
White Poplar 81
Wild Cabbage 74
Wild Hyacinth 68
Willow 8
Wood Rush 67
Wood Sage 73
Yarrow 70
Yellow Archangel 67
Yellow Balsam 24

FUNGI

acutesquamosa, Lepiota 80, 82, 83
adustus, Boletus 83
aggregatum, Tricholoma 83
alutacea, Russula 83
amethystina, Laccaria 83
amianthina, Lepiota 83
anthocephala, Thelephora 80
asterophora, Nyctalis 82, 83
atropurpurea, Russula 83
atropurpureum, Lycoperdon 83
badius, Boletus 83
Beefsteak Fungus 25
betulinus, Polyporus 83
blennius Lactarius 83
bryanti, Geaster 16, 80
butyracea, Collybia 83
caninus, Mutinus 17
ceratopus, Merasmius 83
cerussata, Clitocybe 83
cervinus, Pluteus 83
chlorophanus, Hygrophorus 17
chrysenteron, Boletus 83
cibarius, Cantharellus 82, 83
cinerea, Clavaria 83
cinereus, Cantharellus 83
citrina (mappa), Amanita 83
clavipes, Clitocybe 83
coccineum, Hypoxylon 17, 83
comatus, Coprinus 83
concentrica, Daldinia 5
cornea, Calocera 83
cormicopiae, Pleurotus 83
cornucopioides, Craterellus 16, 82, 83
corticatus (dryinus), Pleurotus 25
crispa, Helvella 17, 82, 83
crispa, Sparassis 83
cristata, Lepiota 83

PAGE
crustuliniforme, Hebeloma 83
cyanoxantha, Russula 83
dryinus (corticatus), Pleurotus 25
dryophilus, Marasmius 83
Earth-star 80
eburneus, Hygrophorus 17, 83
emetica, Russula 83
ephippium, Leptopodia 80
fasciculare, Hypholoma 83
fastigiata, Inocybe 83
fellea, Russula 25, 83
fimbriatus, Geaster 16, 80
foetens, Russula 83
fulva, Amanitopus 82
fusipes, Collybia 83
galopus, Mycena 83
gemmatum, Lycoperdon 64
geophylla, Inocybe 83
giganteus, Polyporus 83
gossypina, Psathryella 83
gracilis, Psathryella 83
gypsea, Mycena 83
hemispherica, Lachnea 83
hemitrichus, Cortinarius 83
hepatica, Fistulina 25
hirsutus, Polystictus 80
hirsutum, Stereum 83
hydrophilum, Hypholoma 83
hypnorum, Galera 83
hypoxylon, Xylaria 83
impudicus, Phallus 83
inaequalis, Clavaria 83
inaurata, Amanitopsis 80
inclinata, Mycena 83
inquinans, Bulgaria 80
inuncta, Stropharia 83
involutus, Paxillus 83
ionides, Tricholoma 80
itybaceus, Polyporus 17
laccata, Laccaria 83
laciniata, Thelephora 83
lascivum, Tricholoma 83
lepida, Russula 83
lilacina, I. geophylla var. 83
lubrica, Leotia 17
lutea, Russula 25
maculata, Collybia 83
mappa (=citrina), Amanita 83
melaleuca, Tricholoma 83
mesenterica, Auricularia 83
nigricans, Russula 83
niveus, Hygrophorus 83
nudum, Tricholoma 83
ochroleuca, Russula 83
ophioglossiodes, Cordyceps 17
pallidus, H. pratensis var. 17
pallidus, Lactarius 80
perlatum, Lycoperdon 83

PAGE
peronotus, Marasmius 83
petaloides, Pleurotus 80
picaceus, Coprinus 83
pistillaris, Clavaria 80
platyphylla, Collybia 83
plumbeus (turpis), Lactarius 83
polygramma, Mycena 83
polymorpha, Xylaria 83
pratensis, Hygrophorus 17
pyriforme, Lycoperdon 83
pyriodora, Inocybe 83
pyrogalus, Lactarius 83
quercina, Daedalea 83
quietus, Lactarius 83
radicata, Collybia 83
repandum, Hydnum 25
rosea, Russula 83
rotula, Merasmius 83
rubescens, Amanita 83
Russula 82
sanguineus, Cortinarius 25
sanguinolentum, Stereum 17, 83
sapinea, Flammula 25, 83
scaber, Boletus 83
semi-lanceata, Psilocybe 17
silvicola, Psalliota 83
sinuosus, Craterellus 16
sistrata, Lepiota 80
sororia, Russula 83
squamosus, Polyporus 67
stellatus, Sphaerobolus 82, 83
subdulcis, Lactarius 83
terreum, Tricholoma 83
torvus, Cortinarius 83
tubaeformis, Cantharellus 25
turpis (=plumbeus), Lactarius 83
unguinosus, Hygrophorus 17
unicolor, Daedalea 83
vaginata, Amanitopus 83
variabilis, Crepidotus 83
variegatus, Elaphomyces 17
vellereus, Lactarius 25
velutinus, Polystictus 16
versicolor, Polystictus 83
vesiculosa, Aleuria 80
volemus, Lactarius 80

HEMIPTERA

albostriella, Alebra 77
ater, Capsus (Rhopalotomus) 74
atropuncta, Cicadella 77
aurata, Cicadella 77
chrysanthemi, Plagiognathus 74
falleni, Corixa 5
germari, Cicadella 77
hortulanus, Tinicephalus 74
melissae, Cicadella 77
norvegicus, Calocoris 74

PAGE
notata, Cicadella ... 77
pabulinus, Lygus ... 74
pallida, Phromnio ... 5
paykulli, Macrotylus ... 74
perrisi, Hylopsallus (Psallus) ... 74
rugosus, Nabis ... 74
urticae, Cicadella ... 77
wahlbergi, Alebra ... 77

HYMENOPTERA

abdominalis, Apethymus ... 34
annulata, Macrophya ... 71
aterrima, Phymatocera ... 34
bimaculatus, Dolerus ... 34
camelus, Xiphydria ... 34
candens, Abia ... 34
cultratus, Cephus ... 71
ferruginea, Nematus (Pteronidea) ... 34
Formica spp. ... 13
fulvipes, Pristiphora ... 34
gonager, Dolerus ... 34
haemotodes, Dolerus ... 71
latreillii, Trichiosoma ... 34
maderiae, Anthophora ... 28
micans, Rhadinoceraea ... 34
nigripes, Arge ... 71
noctilio, Sirex ... 28
ponojenae, Nematus ... 34
quercus, Pristiphora ... 34
oligospila, Nematus ... 34
spinosissimae, Chodites ... 13
testacea, Pristiphora ... 34

ISOPTERA

goliath, Macropternes ... 129

LEPIDOPTERA

abruptaria, Menophra ... 19
absinthii, Cucullia ... 31, 42
acerata, Acraea ... 130
achaemenes, Charaxes ... 124
acheloia, Byblia ... 130
acteon, Thymelicus ... 40
Acraea ... 125
actia, Precis ... 128
acuminatella, Phthorimaea ... 69
addenda, L. coridon ab. ... 19, 35
adusta, Eumichtis ... 38
advena, Orthosia ... 7
aeacus, Ornithoptera ... 47
aegeria, Pararge ... 6, 7, 19, 67, 68, 69, 70, 78, 79, 80
aegerides, P. aegeria r. ... 19
aemulana, Eucosma ... 78, 81
aetheria, Trimetopia ... 131
aestivoria, Hemithea ... 67
aethaloides, P. literosa ab. ... 37
affinis, Cosmia ... 42

PAGE
agatha, Neptis ... 128, 129
agestis, Aricia ... 32, 35, 39, 94, 95, 96, Pl. VIII, 97, 98, Pl. IX, 102, 103
agathina, M. chloris f. ... 126
aglaia, Argynnis ... 11, 20, 25, 77
ahenella, Hypochalcia ... 40
alba + curvata, L. coridon ab. ... 19
alba + ultrafowleri, L. coridon ab. 35
albescens, L. coridon ab. ... 35, 44
albescens + anticaeca, L. coridon ab. 35
albescens + discoidalisnulla, L. coridon ab. ... 35
albescens + postcaeca, L. coridon ab. 35
albiannulata, A. agestis ab. ... 94, 97, 98, 102
albicolon, Hama ... 31, 42
albicosta, P. icarus ab. ... 35
albida, Ypthima ... 130
albimacula, Hadena ... 24, 28, 42
albipuncta, Cosymbia ... 78
albipuncta, Leucania ... 16, 18, 23
albistria, Argyresthia ... 41
albitarsella, Coleophora ... 69
albomarginata, P. dominula ab. ... 44
alboparalella + antico-juncta, L. coridon ab. ... 35
alboradiata, L. coridon ab. ... 35
alboradiata, A. anemosa f. ... 127
albula, Nola ... 16
albulata, Asthena ... 72
alchemillata, Perizoma ... 30, 81
alcyonipenella, Coleophora ... 67
algae (cannae), Nonagria ... 86
allisella, Exaeretia ... 43
allous, A. agestis ab. ... 98
alni, Apatele ... 36
alpicola, Amathes ... 36
alpina, A. alpicola s.sp. ... 36
alstroemeriana, Depressaria ... 41
alternaria, Semiothisa ... 43
alternata (sociata), Epirrhoë ... 78
amata, Calothysanis ... 78
ambigua, Caradrina ... 42, 90
ambigualis, Scoparia ... 40
amicitiae, Acraea ... 130
anatalus, Deudorix ... 126
anceps, Heliophobus ... 24, 36
anemosa, Acraea ... 127
angelicella, Depressaria ... 72
angusticolella, Tischeria ... 81
anomala, Stilbia ... 16, 19
anommata, M. jurtina ab. ... 34, 39
anthyllidella, Stomopteryx ... 74
antialba, M. jurtina ab. ... 19
antiarcuata, L. coridon ab. ... 19
anticaeca, L. coridon ab. ... 19
anticrassipuncta, M. jurtina ab. ... 19

PAGE
antidisco-elongata + postcaeca, L.
coridon ab. 44
antiexcessa, M. jurtina ab. 19
antiexcessa, M. tithonus ab. 19
antijuncta, L. coridon ab. 35
antilope, Precis 128
antiquana, Endothenia 41
antisinis-discoidalis-nulla, L. coridon
ab. 35
antistriata, L. coridon ab. 19, 35
aphirape, Brenthis 21
apicojuncta, P. icarus ab. 19
apollo, Parnassius 21, 33
applana, Depressaria 41
aquana, Notocelia 41
arcania, Coenonympha 21
arcella, Tinea 77
archesia, Precis 126, 128
arcua, P. icarus ab. 19
arcuella, Argyroploce 26, 72
arenella, Depressaria 41
areola, Xylocampa 65
arete, A. hyperantus ab. 19, 38, 39
argentella (cygnipennella),
Elachista 41, 69
argiolus, Celastrina 69
argus, Plebejus 30, 35, 44, 45, 73
argyrozona, B. fagana ab. 36
arion, Maculinea 11, 24
armigera, Heliothis 7, 20, 25, 42
arragonensis, Lysandra 33
artaxerxes, A. agestis s.sp. ... 32, 94,
95, Pl. VIII, 97, 99, 102
artaxia, Precis, ... 128, 129
artemisicolella, Coleophora 81
artemisiella, Coleophora 78, 81
asboplintha, Acraea 130
ashworthii, Amathes 14, 30
aspersana, Acleris (Peronea) ... 40,
71, 73, 79
assimilis, A. exulis f. 25, 26, 30, 45
asteris, Cucullia 78, 81
asturiensis, L. caelestissimus s.sp. ... 33
asturiensis, L. corydonius s.sp. 33
athalia, Melitaea ... 24, Pl. III (fig. 3
and 4), 44
atolmis, Acraea 129
atomaria, Ematurga 68
atropos, Acherontia 8, 18, 22
auraga, Tiliacea 35, 82
aurana, Laspeyresia 41
aurana, S. revayana ab. 36
aurantia, G. micacea ab. 37
aurantia, L. bellargus ab. 35
aurantiana, Pammene 19
aurata, Rhodaria 79
aurinia, Euphydryas 20, 21, 24
aurinia, Melitaea 43, 44
aurogutella, Gracillaria 82

PAGE
auromarginella, Nepticula 66, 67
auronulla, L. coridon ab. 35
aurota, Anephaeois 126
australis, Aporophyla 31, 46
autumnata, Oporinia 68
avellana, Apoda 11, 45
azaleella, Gracillaria 7, 43
badiella, Depressaria 77
baliodactyla, Alucita 73
basijuncta, P. icarus ab. 19
basistrigalis, Scoparia 40
baumanniana, Chlidonia 72
belisaria, N. io ab. 36
bellargus, Lysandra ... 33, 35, 39, 44, 77
bellieri, A. urticae ab. 30
bennetii, Agdistis 78
bergamanniana, Argyrotoza 40, 74
berylaria, C. cinctaria ab. 37
betulae, Phycita 5
betulae, Thecla 69
betulea, Gelechia 68
betuletana, Argyroploce 41, 78
bicolorata (serena), Hadena 24
bicruris, Hadena 25, 27
bidentata, Gonodontis 2, 19, 24, 40
bifasciata, T. fluctuosa ab. 36
bifida (hermelina), Harpyia (Cerura), 45
bi-I-nigrum, L. coridon ab. 19
biloba, Plusia 47
bilinea, B. fagana ab. 36
bilunana, Eucosma 41
bilunaria, Selenia 29, 30, 40
bipunctidactyla, Stenoptilia 72
biriviata, Xanthorhoë 7, 24, 26, 43
biselata, Sterrha 75
blanda, Caradrina 12
boeticus, Lampides 21
boisduvali, Pseudacraea 126
boleti, Scardia 42
borbonica, Pelopidas 126
borealis, P. fuliginosa f. 3
boreella, Gelechia 34
boscana, Acleris (Peronea) 81
bowesi, C. cinctaria s.sp. 37
bractea, Plusia 14, 22, 26, 36
brassicae, Pieris 67
brevilinea, Arenostola 23
brigitta, Terias 126, 128
brissotii, Cithoronia 6
britannica, B. fagana s.sp. 36
brockeella, Argyresthia 41
brumata, Operophtera 18, 30
brunneata, Itame 26
brunnescens, P. dominula ab. 44
bucephala, Phalera 81, 82
caeca, A. agestis ab. 32, 98
caeca, A. hyperantus ab. 39
caeca, C. minimus ab. 39
caeca, L. bellargus ab. 44

PAGE
caeca, L. coridon ab. ... 35, 44
caeca, P. icarus ab. ... 19
caelestissima, Lysandra ... 33
caernensis, P. argus s.sp. ... 30
caerulea, P. icarus ab. ... 19
caeruleo, L. coridon ab. ... 35
caeruleo + glabra, L. coridon ab. ... 39
caerulescens, Lysandra ... 33
caesia, Hadena ... 36
caesiata, Entephria ... 30
caja, Arctia ... 20, 31, 34, 38
c-album, Polygonia ... 27, 66, 67, 79
calice, Castalius ... 126
calderina, Acraea ... 126, 129
caliginosa, Acosmetia ... 91, 93
callima, Utetheisa ... 131
callunae, L. quercus ab. ... 32
calthella, Micropteryx ... 72
cambrica, Venusia ... 36
camilla, Limenitis ... 11, 27, 69, 76
candiope, Charaxes ... 126
canella, Gymnancyla ... 43
caniola, Eilemma ... 26
cannae (=algae), Nonagria ... 86
capsophila, Hadena ... 37
capucina, Lophopteryx ... 81, 82
Caradrina ... 93
cardamines, Euchloë ... 6, 27, 32, 67, 68, 69, 70
cardui, Vanessa ... 18, 27, 36, 69, 73, 76, 79
carlinella, Metzneria ... 74
carmelita, Odontosia ... 6
carphodactyla, Oidematophorus ... 79
carpinata, Trichopteryx (Nothopteryx) ... 67
cassiteridum, M. jurtina s.sp. ... 38
castanea, Amathes ... 22, 68
castiliana, E. zapateri ab. ... 33
catalaunalis, Antigastra ... 46
catella, Achaea ... 129
catharticella, Nepticula ... 82
caudana (=emargana), Acleris ... 40
cautella, Ephestia ... 8
cebrene, Precis ... 126
celerio, Hippotion ... 17, 18, 26, 31
centralipunctata, A. grossulariata ab. 23, Pl. III (fig. 11)
cerasana (ribeana), Pandemis ... 40
ceronus, L. bellargus ab. ... 35
cesiata, Entephria ... 30
cespitalis, Rhodaria ... 40
cespitis, Tholera ... Pl. II (fig. 7), 32
charlotta, A. aglaia ab. ... 20
chi, Antitype ... 45
chlorosata, Lithina ... 68
chloris, Mylothris ... 126, 128
christiernana (citrinalis), Hypercallia ... 7, 8, 12, 25, 43, 68, 70

PAGE
chrysippus, Danaus ... 126, 127
chrysolepidella (kaltenbachii), Eriocrania ... 69
chryson, Plusia ... 24
chrysonuchellus, Crambus ... 71
chrysorrhoea, Euproctis ... 82
cidarella, Bucculatrix ... 79
ciliella, Depressaria ... 41
cinctaria, Cleora ... 37
cinerariae, Oidematophorus ... 49
cinerea (=denticulata), Agrotis, 42, 45
circe, Satyrus ... 21
circumsignata, O. gothica f. ... 45
citrago, Tiliacea ... 24, 39
citrata, Dysstroma ... 30, 37
citrinalis (=christiernana) Hypercallia ... 7, 8, 12, 68
clathrata, Chiasmia ... 19, Pl. III (fig. 6), 34
clavaria, Larentia ... 81
Clay Triple-lines ... 80
clelia, Precis ... 126
cleopatra, Gonepteryx ... 21
cloacella, Tinea ... 72
Clouded Magpie ... 80
cnicella, Depressaria ... 71
c-nigrum, Amathes ... 16, 19, Pl. II (fig. 6), 32, 42
cognata, Thera ... 26
cognatella, Hyponomeuta ... 15
Coleophora ... 5
Colias ... 18
curtisii, N. comes ab. ... 26
comma, Hesperia ... 79
comes, Noctua (Triphaena) ... 25, 26, 45
comparella, Lithocolletis ... 81
complana, Eilema ... 38
compositella, Laspeyresia ... 41
compta, Hadena ... 16, 19, 39
comptana, Ancylis ... 69
concolor, D. pudibunda ab. ... 21
congressariella, Nothris ... 34
confluens, P. icarus ab. ... 35
confluens + melaina, A. paphia ab., 42
confluentiae, L. coridon ab. ... 19
confluentiae + glomerata, L. coridon ab. ... 35
conigera, Leucania ... 33
coniferana, Laspeyresia ... 66
conjuncta, D. lacertinaria ab. ... 36
consimilana, Clepsis (Tortrix) ... 74
consimilis (unifasciana), Clepsis ... 40
consonaria, Ectropis ... 38
conspersa, Hadena ... 25, 29, 73
conspicillaris, Xylomiges ... 26
constans, E. manto ab. ... 33
costajuncta, P. argus ab. ... 35
contaminana (=rhombana), Acleris 40
conturbatella, Mompha ... 67, 69

PAGE
conversaria, A. repandata ab. 38
convolvuli, Herse 15, 18, 20, 21
conwaygana, Pseudargyrotoza 40
conyzae, Coleophora 69
cordigera, Anarta 31
coridon, Lysandra ... 19, 24, 27, 33, 34, 35, 39, 44, 70, 77, 79, 94, 103
coridonius, Lysandra 33
corylana, Pandemis 40
coryli, Colocasia 38
coryli, Lithocolletis 82
costalis, Pyralis 40
costana, Clepsis 27, 40
costajuncta, P. argus ab. 35
costijuncta, O. mucronata ab. 37
crassalis (fontis), Bomolocha 30, 42
crassipuncta, A. hyperantus ab. ... 38, 44
crassipuncta, L. coridon ab. 19
crassipuncta, P. icarus ab. 35
crassipuncta + discreta, A. agestis ab. 35
crataegella, Scythropia 75
crataegi, Trichiura 14, 45
crepuscularia, Ectropis 40
cribrumalis, Zanclognatha 32
crinanensis, Hydraecia 30, 47
cristana, Acleris (Peronea) 40, 65
crocea, P. dominula 44
croceus, Colias 14, 27
cucubali, Hadena 25
cuculata, Euphyia 38, 40
cuculatella, Nola 67
culmellus, Crambus 40
cultraria, Drepana 82
cursoria, Euxoa 14, 23, 30
curtisii, N. comes ab. 25, 26
curtula, Clostera 27
curzoni, E. satyrata f. 42
cydippe, Argynnis 19, 76
cygnipennella (=argentella), Elachista 69
cynthia, Philosania 31
daedalus, Hamanumida 126
dahlii, Diarsia 22, 30, 31
decemgutella, Ethmia 15, 80
decorella (=divisella), Mompha 73
defoliaria, Erannis 37
degeerella, Nemotois 72
deliciosa, Lysandra 33
demodocus, Papilio 129
demuthi, A. prasina ab. 37
denotata, Eupithecia 79
denticulata (cinerea), Agrotis ... 42, 45
deplana, Eilema 65
depuncta, Amathes 22, 25
derivalis, Paracolax 29
designata, Xanthorhoë 30
didyma, Melitaea 21
didymata, Colostygia 30

PAGE
diluta, Asphalia 24
diluta, E. hastata ab. 37
dilutella, Pemplia 40
dipoltella, Phalonia 26
dipsacea (=viriplaca), Heliothis 24
discoidajuncta, L. coridon ab. 35
discordella, Coleophora 69, 81
discreta, L. coridon ab. 35
discreta, P. icarus ab. 35
dissoluta, Nonagria 23, 84
distans, Oxyptilus 12, 42
ditrapezium, Amathes 22, 30
divisella (decorella), Mompha 73
dodonia (trimacula), Drymonia 45
dolabraria, Plagodis 40
dominula, Panaxia ...... Pl. II (fig. 4), 31, 44
domoducus, Papilio 127
dryope, Eurytela 130
dubitalis, Scoparia 26, 40
dubitana, Phalonia 48
dubitana (littoralis), Polychrisia 48
eburnata, Sterrha 30
echerio, Amauris 130
edda, A. glareosa ab. 30, 42, 45
edelsteni (=neurica), Nonagria ... 29, 84
efformata, Anaitis 32
egerides, P. aegeria r. 19
elinguaria, Crocallis 36, 38
ellioti, Amauris 130
elongella, Gracillaria 79
elpenor, Deilephila 80
elymi, Arenostola 23, 29
emargana (caudana), Acleria 40
encedon, Acraea 125, 126
eos, C. pendularia ab. 24
epiphron, Erebia 27
ericetana, Endothenia 41
erigerella, Coleophora 82
Eriocrania 66
eriphia, Picacopteryx 126
eris, Colotois 126, 127
escalerae, P. apollo s.sp. 33
esculi, Thecla 21
euphenoides, Euchloë 21
euphorbiae, Apatele 36
euphorbiae, Celerio 28
euphrosyne, Argynnis 19, 33, 39, 72
evonymella, Hyponomeuta 41
excessa, M. tithonus ab. 44
exclamationis, Agrotis 29, 31, 33, 38
expallidana, Eucosma 41
exsoleta, Xylena 24
extensa, C. lunula ab. 37
exigua, Laphygma ... 2, 3, 7, 18, 21, 22, 33, 36, 38
expallidana, Eucosma 41
exquisita, H. furcata ab. 37
exulis, Apamea 25, 30, 42, 45

PAGE
fabriciana, Anthophila 40, 67
fagana (prasinana), Bena 36, 40, 82
fagaria, Dyscia 24, 31
fagata, Operopthera 68
fagella, Diurnea 5, 41, 65, 66
fagi, Stauropus 36, 80
falax, Borbo 130
falconipennella, Gracillaria 78
farinatella, Cedistes 66
fascelina, Dasychira 45
fasciaria, P. pilosaria ab. 37
fasciata, E. tritici ab. 36
fasciata, O. lignata ab. 37
fasciata, P. dominula ab. 44
favicolor, Leucania 15
feminaecoloris, A. prunaria ab. 13
ferrugalis, Hapalia 40
ferrugana, Acleris 65, 81
festiva, Diarsia 14, 30, 45
festucae, Plusia 14, 22
fibulella, Adela 72
filipendulae, Zygaena 12, 36, 71
fimbriata, A. effornata ab. 32
fischeriella, Glyphipteryx 48, 69, 72
flammea, Melaina 24, 29
flammealis, Endotricha 40, 78
flavago, Gortyna 79, 81
flavescens, P. argus ab. 44
flavicornis, Achyla 24, 45, 68
?flavida, Eublemma 38
flaviventris, Aegeria 11
flavo-linea, O. munda ab. 37
flexula, Laspeyria 40
florella, Catopsella 126, 127
fluctuosa, Tethea 30, 36
fluxa, Arenostola 29
foenella, Eucosma 41
fontis (=crassalis), Bomolocha 42
forficellus, Schoenobius 40
formosana, Lozotaeniodes (Eulia) ... 43
forskåleana, Tortrix 40, 75
forsterana, Lozotaenia 40, 67
fowleri, L. coridon ab. 35, 39, 102
frangulella, Bucculatrix 82
fraxina, Catocala 7, 21, 22, 31
fuligana, Endothenia 41
fuliginaria, Parascotia 26, 66, 68
fuliginosa, Phragmatobia 3
fulvescens, L. coridon ab. 35
fulvimitrella, Tinea 72
fumata (=ternata), Scopula 14
fumosa, P. meticulosa ab. 32
funebris, Anania 72
funerella, Ethmia 41
furcata, Hydriomena 30, 37, 69
furcula, Harpyia 24
furva, Apamea 22, 42
fusca, Dioryctria 5, 43
fusca, Laodamia 47

PAGE
fuscata, M. abruptaria ab. 19
fuscedinella, Coleophora 10, 69
fuscoviridella, Glyphipterix 72
galactaula, Coleophora 72
galathea, Agapetes 43
galliae, L. coridon s.sp. 33
gamma, Plusia ... 2, 9, 15, 27, 32, 45, 70
gelidaloides, E. nanata s.sp. 30
geminipuncta, Nonagria 84
geniculella, Lithocolletis 80, 82
geniculeus, Crambus 40, 79
gentiana, Endothenia 67
geoffrella, Oecophora 41, 72
gilvago, Cirrhia 39
glabrata + impar, L. coridon ab. ... 44
glaciata, E. caesiata s.sp. 30
glareosa, Amathes ... 14, 16, 30, 33, 42, 45
glaucinalis, Pyralis 40
globulariae, Procris 31
glomerata, L. coridon ab. 35
glomerata + centriquinta + postsinis-transformis, L. coridon ab. 35
glycirrhizae, Z. trifolii ab. 19
glyphica, Ectypa 73
gnaphalii, Cucullia 72
gnoma, Pheosia 82
goedartella, Argyresthia 41
gorgone, Erebia 33
gothica, Orthosia 24, 34, 45
Gracillaria 79
gracilis, Orthosia 6, 7, 28, 37
graminis, Cerapteryx 25
grisea, L. coridon ab. 44
grisealis, Zanclognatha 73
griseata, Lithostege 18, 24
griseisigna, Speiredonia 129
grossana, Laspeyresia 82
grossulariata, Abraxas 23, 40, 78
grotiana, Epagoge (Capua) 40
gryphipennella, Coleophora 69
guderiana, Charaxes 127, 128
hamana, Euxanthis 40
hartmanniana, Argyroploce 41
hastata, Eulype 37, 72
hastata, Rheumaptera 30
hastiana, Acleris (Peronea) 79
hecate, Amauris 129
heirta, Precis 127
helice, C. croceus ab. 14
heparana, Pandemis 40
hepariella, Zelleria 65
hepatica (tincta), Polia 68
heracliana, Depressaria 41, 77
heringiana, Eucosma 78
hermelina (=bifida), Harpyia (Cerura) 45

PAGE
hermione, Satyrus 21
hippocastanaria, Pachycnemia ... 40, 66
hispida, Leucochlaena 29
hispidaria, Apocheima 69
holmiana, Acleris (Peronea) 40
hostilis, Dioryctria 43
hutchinsoni, P. c-album ab. 27
hyale, Colias 33
hybridella, Phalonia 81
Hydrillula 93
hyperantus, Aphantopus ... 19, 24, Pl. III (fig. 9), 25, 38, 39, 44, 76
Hyponomeuta 15
icarus, Polyommatus ... 19, 21, 35, 70, 72, 73, 94
ichnusoides, A. urticae ab. 19
ida, Epinephele 21
illustris, B. roboraria ab. 37
imella, Monopis 43
immorata, Scopula 26
impura, Leucania 38
inaequalis, L. coridon ab. 35
incerta, Orthosia 2, 24, 37, 45
indica, Pyrameis 28
inferta, Apamea 24
infrasemisyngrapha, L. coridon ab. 35, 44
ingenua, A. australis var. 46
inornata, Ancylis 43
inornata, V. cardui ab. 36
inquinatellus, Crambus 78, 79
internana, Laspeyresia 41
interrogationis, Plusia ... 22, 26, 36, 45
io, Nymphalis ... 2, 7, 31, 36, 66, 68, 69, 78
iota, Plusia 22, 31
iphis, P. icarus ab. 19
ipsilon, Agrotis 31
iris, Apatura 30, 39, 76
irregularis, Anepia 11, 18, 36
irrorella, Hyponomeuta ... 12, 15, 43, 74, 75
islandicana, P. dubitana s.sp 48
islandicans, X. designata s.sp. 30
jacksoni, Hypolycaena 130
jacksoni, M. sagala f. 130
janthina, Noctua (Triphaena) 22
juncta, P. dominula ab. 44
juniperata, Thera 26, 79
jurtina, Maniola ... 19, 23, 27, 31, 34, 35, 38, 39, 44, 73, 76
kaguya, O. aeacus s.sp. 47
kaltenbachii (=chrysolepidella), Eriocrania 69
kuali, P. octavia ab. 30
lacertinaria, Drepana 36, 68
lachesis, Melanargia 21
lacticolor-suffusa, M. jurtina ab 31
lacunana, Argyroploce 41, 72
l-album, Leucania 90
lanceolana, Bactra 72
lanceolata, A. hyperantus ab. ... 19, 24, 38, 39, 44
lanestris, Eriogaster 78
lapidea (=leautieri), Lithophane 29, 38
lapponaria, Poecilopsis 24, 45
Large Elephant Hawk 80
latiora, L. coridon ab. 35
latruncula, Procus 34
lavendula + suffusa, L. coridon ab. 44
leautieri (lapidea), Lithophane ... 26, 29, 38
lefebvrei, Erebia 33
legatella, Chesias 72
lemnata, Cataclysta 40
lemolea, Spalgis 130
lepida, Hadena 25, 36, 73
leplastriana, Laspeyresia 43, 73
lethi, Euchromia 4
leucanioides, Creatonus 131
leucospilata, Comibaena 131
leuwenhockella, Pancalia 69
libatrix, Scoliopteryx 81
lichenaria, Cleorodes 24
lichenea, Eumichtis 37
lignata, Orthonama 37
ligustri, Sphinx 27
limbojuncta, P. icarus ab. 35
limoniella, Goniodoma 81
linariata, Eupithecia 37
linearia, Cosymbia 85
linneella, Chrysoclista 9
literosa, Procus 23, 37
Lithocolletis 81
littoralis, Leucania 33
littoralis (=dubitana), Polychrisia 48
littorella, Metzneria 43
litura, Prodenia 28
liturata, Semiothisa 36, 40, 45
liturella, Depressaria 69, 71
livida, P. icarus ab. ... Pl. II (fig. 9), 21
livornica, Celerio 7, 18, 30, 45
Lobster Moth 80
loeflingeana, Aleimma 40
lonicerae, Zygaena 12, 13, 70
loreyi, Leucania 31
lotella, Leucoptera 81
lotella, Anerastia 34
lubricipeda (menthastri), Spilosoma 24, 34, 36, 38
lucens, Hydraecia 47
lucernea, Ammogrostis 14, 45
lucina, Hamaearis 72
luctuata, Euphyia 10, 72
lunaextensa, L. coridon ab. 35
lunaria, Selenia 27, 72
luneburgensis, A. lutulenta ab. 29
lunula, Calophasia 26, 36, 37, 39
lutea, Citria 80

PAGE

lutea, Spilosoma ... 16
lutealis, Hapalia ... 40
lutescens, L. coridon ab. ... 35
lutosa, Rhizedra ... 29
lutulenta, Aporophyla ... 29
machaon, Papilio ... 11, 19
macilenta, Agrochola ... 18
macularia, Pseudopanthera ... 69, 72
maculipennis, Plutella ... 9, 41, 48, 70
malathana, Euchrysops ... 130
malvae, Pyrgus ... 67, 72
mansuetella, Micropterix ... 72
manto, Erebia ... 33
margaritaceus, Cupido ... 130
marginea, Tischeria ... 67
marginata, Lomaspilis ... Pl. III (fig. 7), 34
marginata, L. coridon ab. ... 44
marginata + latiora, L. coridon ab. 39
marginepunctata, Scopula ... 42
maritima, Chilodes ... 23
maritima, Heliothis 26, 34
Marsh Moth ... 88
mashuna, Ypthima ... 124
matura, Thalpophila ... 37, 38, 42
megacephala, Apatele ... 30
megera, Pararge ... Pl. III (figs. 1, 2 and 8), 26, 27, 68
melathana, Euchrysops ... 126
melanotica, C. coryli ab. ... 38
melochroa, Bocula ... 129, 131
menthastri (=lubricipeda), Spilosoma ... 38
meolans, Erebia ... 21
mercurea, Eudoria ... 40
metallica, L. bellargus ab. ... 35
metallica, L. coridon ab. ... 44
meticulosa, Phlogophora ... 32
mi, Euclidimera ... 72, 73
micacea, Gortyna (Hydraecia) ... 37
microgrammana, Laspeyresia ... 73
miniata, Miltochrista ... 30
minimus, Cupido ... 35, 39
miniosa, Orthosia ... 28
ministrana, Eulia ... 40
minor, C. minimus ab. ... 35
minutella, Borkhausenia ... 72
miscella, Mompha ... 69
monoglypha, Apamea ... 25, 45
montanata, Xanthorhoë ... 38, 72
morpheus, Caradrina ... 89, 90
morrisii, Arenostola ... 28, 40
mucronata, Ortholitha ... 29, 37
munda, Orthosia ... 37, 45
munitata, Xanthorhoë ... 26, 30, 45
muricata, Sterrha ... 24, 30
muscalella, Incurvaria ... 67
musculana, Syndemis ... 40
myllerana, Choreutis ... 72

PAGE

myricae, A. euphorbiae s.sp. ... 36
mysippus, Hypolimnus ... 129
myrtillata, Gnophos ... 14, 26
myrtilli, Anarta ... 68, 78
nanata, Eupithecia ... 30, 66, 68
nanatella, Depressaria ... 69
napi, Pieris ... 22, 32, 42, 67, 69, 73
natalensis, Ctenogyne ... 129
natalica, Acraea ... 128, 129
neophanes, Euzophera ... 5, 26, 43, 66, 68
nerii, Daphnis ... 129
neurica (edelsteni), Nonagria ... 23, 29, 84
neurophaea, Creatonus ... 131
ni, Plusia ... 13, 14, 18, 26, 35, 36, 38
nigra, A. urticae ab. ... 36
nigra, G. bidentata ab. ... 19
nigra-suffusa, L. unipuncta ab. ... 37
nigrata, Pyrausta ... 40, 77
nigricans, Euoxa ... 42
nigricata, A. repandata ab. ... 38
nigricans, P. gamma ab. ... 32
nigrescens, L. coridon ab. ... 35
nigrescens + arcuata, L. coridon ab. 39
nigrescens + furvescens, L. coridon ab. ... 39
nigrescens + nubila, L. coridon ab. 39
nigrocosta, P. porphyrea ab. ... 38, 45
nigrofulvata, S. liturata ab. ... 45
nigro-linea, O. gracilis ab. ... 37
nigromaculana, Eucosma ... 41
nigropunctata, Scopula ... 12
nigro-suffusa, L. unipuncta ab. ... 37
nireus, Papilio ... 129
nisella, Eucosma ... 41
niso, Gegenes ... 126
nitens, Polia ... 24
nitidella, Argyresthia ... 41
noctuella, Nomophila ... 71, 78
notata, Semiothisa ... 40, 72
novarae, P. apollo ab. ... 33
nubeculosa, Brachionycha ... 24, 45
nubiferana, Argyroploce ... 41
nupta, Catocala ... 21, 22
nupta × fraxini, Catocala ... 22
nymphaeata, Nymphula ... 40
obductella, Nephopterix ... 43, 73
obelisca, E. tritici ab. ... 29
obeliscata, Thera ... 36
oblonga, Apamea ... 23, 42
oblongana, Endothenia ... 41
obscurata, Gnophos ... 78
obsolescens, D. citrata ab. ... 37
obsolescens, G. pumilata ab. ... 37
obsolescens, H. capsophila ab ... 37
obsoleta, A. agestis ab. ... 35
obsoleta, A. hyperantus ab. ... 39
obsoleta, H. paludis ab. ... 37
obsoleta, L. bellargus ab. ... 35

PAGE
obsoleta, L. coridon ab. 19, 35, 44
obsoleta, Leucania 16, 29
obsoleta, P. icarus ab. 35
obsoleta + radiata, P. icarus ab. ... 21
obstipata, Nycterosia (Nyctosia) ... 10, 14, 16, 18, 25, 26
occindentalis, P. indica s.sp. 28
occulata, Eurois 12
ocellaris, Cirrhia 17, 18, 28, 39
ocellea, Euchromius 27
ochrata, Sterrha 26
ochrea, L. coridon ab. 44
ochroleuca, Eremobia 77
ocnerostomella, Douglasia 73, 74
ocularis, Tethea 14, 24, 31
octavia, Precis 30
oculea, Hydraecia 47
oehlmanniella, Lampronia 41
oenone, Precis 127
olivalis, Hapalia 40
omicronata, H. peltigera ab. 37
ononaria, Aplasta 40, 73
onosmella, Coleophora 73, 74
oo, Dicycla 11, 28, 31, 39, 45
oporana (podana), Archips 40
orbona, Noctua (Triphaena) 14, 24
orbicularia (=pendularia) Cosymbia 24, Pl. III (fig. 5)
ornata, Scopula 73
Orthosia 66
osiris, Euchrysops 130
osseana, Eana 40, 48
osteodactylus, Oidaematophorus 49
ostrina, Eublemma 9, 42
?ostrina, Eublemma 38
oxyacanthae, Allophyes ... Pl. II (fig. 3), 30
padella, Hyponomeuta 41
pagenstecheri, Ergolis 130
paleacea, Enargia 11, 35, 45
palaemon, Carterocephalus 40
paleana, Amelia (Tortrix) 71, 73
pallens, Leucania 15
pallida, H. peltigera ab. 42
pallida, M. jurtina ab. 44
pallida, Witlesia 34
pallidula, L. coridon ab. 39
pallidula + transformis, M. tithonus ab. 44
paludata (=sororiata), Carsia 26
paludis, Hydraecia 37, 47
paludum, Trichoptilus 42
palustris, Hydrillula ... 29, 31, 88, 89, 90, 93
pamphilus, Coenonympha ... 26, 39, 44, 69, 72
panzeriella, Nemophora 41
paphia, Argynnis 27, 38, 42, 44
PAGE
papilionaria, Geometra (Hipparchus) 68
paradoxa, A. exclamationis ab. 29
parenthesellus, Ypsolophus 41
parthenias, Archiearis (Brephos) 65, 66
partimflavescens, L. coridon ab. ... 35, 44
partimtransformis, M. jurtina ab. ... 35, 44
partimtransformis, P. argus ab. ... 35
pascuellus, Crambus 47
pasiphae, Epinephele 21
pavonia, Saturnia ... 6, Pl. II (fig. 1), 28
pectinataria, Colostygia 72, 80
pedaria (pilosaria), Phigalia 37
pelias, Charaxes 125
peltigera, Heliothis ... 7, 10, 12, 18, 21, 22, 24, 26, 29, 31, 33, 37, 42
pendularia (orbicularia), Cosymbia 24, Pl. III (fig. 5)
penkleriana, Eucosma 41, 66
pennaria, Colotois 24, 72
perlellus, Crambus 40
perlepidana, Laspeyresia 41
pernyi, Antheraea 31
petasitis, Gortyna (Hydraecia) 36
Petilampa 93
petiverella, Hemimene 41
phaedusa, Lobobunaea 131
phalaeoides, L. phlaeas s.sp. 28
pharsalus, Acraea 130
phlaeas, Lycaena 19, 20, 28, 69, 94
phoenicochlora, Lophocrania 131
phragmitella, Limnoecia 66
phragmitidis, Arenostola 85
pickettaria, A. prunaria ab. 12, 26
pictonensis, L. bellargus s.sp. 33
pigra, Dixeia 128
pilleriana, Sparganothis 40
pilosaria (pedaria), Phigalia 37, 69
pimpinellata, Eupithecia 79
pinastri, Hyloicus 36
pinellus, Crambus 40, 78
piniaria, Bupalus 26
pisi, Ceramica 35, 81
plaga, A. exclamationis ab. 38
plagiata, Anaitis 31, 37
plantaginella, Scrobipalpis 48
plantaginis, Parasemia 34
plebiana, Crocidosema 34
ploetzi, Rothschildia 131
plumbagana, Hemimene 41
plumbana, Hemimene 70, 74
plumbea, O. incerta ab. 37
plumbella, Hyponomueta 15
plumbeolata, Eupithecia 30
plumbescens + suffusa, L. coridon ab. 44
plumigera, Ptilophora 45
pluriradiata, A. aglaia ab. 20
podana (=oporana), Archips 40

PAGE
polaris, A. urticae ab. 44
polycommata, Trichopteryx 4
pomonella, Laspeyresia 41
poppaea, Mylothris 126, 128
populella, Anacampsis 41
populi, Loathoë 8, 30, 44, 69
porrectella, Plutella 41
porphyrea, Peridroma 38, 45
postbielongata, L. coridon ab. 35
postcaeca, L. coridon ab. 19, 35
postdex-alba-limbojuncta, L. coridon ab. 35
postico-obsoleta, A. agestis ab. 39
postico-obsoleta, P. icarus ab. 19
postimpar, L. coridon ab. 35
postobsoleta, C. minimus ab. 35
postobsoleta, L. coridon ab. 19
postradiata, R. lutosa ab. 29
post-triexcessa, M. tithonus ab. 44
potentillae, Coleophora 81
praeclara, E. defoliaria ab. 37
praerupta, E. linariata ab. 37
prasina, Anaplectoides 37
prasinana (=fagana), Bena 83
prasinana, Pseudoips 40
procellata, Melanthia 77
prodromana, Philedonides 34
promissa, Catocala 24, 33, 39
pronuba, Noctua (Triphaena) Pl. II, (fig. 2), 23, 30, 32
prostatella, Depressaria 1
protea, Dryobotodes 69
pruinana, Argyroploce 41
prunalis, Hapalia 40
prunaria, Angeronia 11, 13, 26
pruni, Strymonidea 27, 34
pseudobombycella, Talaeporia 67
psi, Apatele 79
pterodactyla, Stenoptilia 75
pudibunda, Dasychira 13, 21, 26
pudorina, Leucania 33
pulchella, Utetheisa 131
pulla, L. coridon ab. 35, 44
pumilata, Gymnoscelis 37
punctata, L. coridon ab. 24, 35
punctato-margino, L. coridon ab. 35, 39
punctulata, Athalura 68
puppillaria, Cosymbia 29, 32, 38
Purple Emperor 76
purpuralis (=rubroaurella), Eriocrania 69
purpuralis, Rhodaria 40
purpuralis Zygaena 36
puta, Agrotis 21
pyrina, Zeuzera 42
quadrana, Eucosma 67
quadra, Lithosia 17
quadricolor, Bematistes 130
quadrifascia, Xanthorhoë 24, 75

PAGE
quercana, Carcina 41
quercifolia, Gastropacha 34, 77, 81
quercus, Lasiocampa 27, 32, 81
quercus, Thecla 69, 76
quinterratica, L. coridon ab. 35
radiata, M. jurtina ab. 38
radiatellus, Ypsolophus 41
radio + transformis, L. coridon ab. 44
ramburialis, Diarsia 42
ramella, Eucosma 41
rapae, Pieris 2, 6, 25, 69
ratzeburgiana, Eucosma 41, 43
Reddish Buff 91
Reed Wainscot 86
regiana, Pammene 66
renago, D. oo ab. 31
repandata, Alcis (Cleora) 38, 73
resplendella, Heliozela 79
reticulata, Eustroma 15
revayana, Sarrothripus 36
rhamni, Gonepteryx 2, 6, 7, 27, 66, 67, 68, 69, 73, 78
rhombana (contaminana), Acleris 40
rhomboidaria, Cleora 42
ribeana (=cerasana), Pandemis 40
ribeata, Deileptarsia 65
ridens, Polyploca 45
ripae, Agrotis 25, 38
roboraria, Boarmia 37
rosescens, Ozarba 131
rosana, Archips 40
rotunda, P. napi ab. 22
rougeoti, Eumeta 131
rubi, Callophrys 67, 72, 75
rubi, Macrothylacia 68
rubiginata, Scopula 24
rubroaurella (purpuralis) Eriocrania 69
rueppelli, M. peppaea f. 126, 128
rufa, Coenobia 87
rufata, Chesias 37
ruficornis, Chaonis (Drymonia) 6, 8, 45
Rufous Wainscot 87
rugosana, Phtheocroa 40
rumicis, Apatele 36
rupicola, Phalonia 74
rustica (=vulpinaria), Sterrha 14, 26
rusticella, Monopis 41
sacraria, Rhodometra 14, 15, 17, 18, 21, 22, 26, 32, 34, 38, 40
saga, H. furcata s.sp. 30
salaga, Mylothris 130
sagittata, Perizoma 29
salicalis, Colobochyla 8, 10, 11, 16, 24, 26, 43, 72
salicella, Argyroploce 41
salmacis, A. agestis ab. 94
sambucalis, Perinephela 40
sannio, Diarsia 73

PAGE
satyrata, Eupithecia 30, 42
scabiosella, Lithocolletis 77
scabiosella, Nemotois 77
scabrellus, Ypsolophus 41
scabriuscula, Dypterygia 24
schaenia, Antanartia 130
schalleriana (=latifasciana),
Argyrotoza 40, 80
schreberella, Lithocolletis 79, 82
scillonea, E. lichenea ab. 37
sciona, Diacrisia 131
scopoliana, Eucosma 41
scotica, A. plagiata s.sp. 37
scotica, C. rufata s.sp. 37
scoticella, Ornix 77, 79
selene, Argynnis ... Pl. III (fig. 10),
33, 38, 39, 42, 72
sellana, Endothenia 41
semele, Eumenis 27, 30, 78
semialba, M. jurtina ab. 23
semiarcuata, L. bellargus ab. 35
semifascia, Gracillaria 43
semifasciana, Argyroploce 41
semifasciata, A. xanthographa ab. ... 37
semifowleri-margino, L. coridon ab. 44
semifulvella, Acedes 41
semifuscana, Eucosma 14, 41
semilella, Nephopterix 11
semi-nigrata, A. urticae ab. 36
seminigrina, L. camilla ab. 27
semirubella, Phycita 77
semisyngrapha, L. coridon ab. ... 19, 39
semitestacella, Argyresthia 80
senescens, Scythris 73
senitella, Subeidophasia 48
septentrionalis, H. maritima s.sp. ... 34
sequax, Telphusa 69, 77
sequellus, Ypsolophus 41, 80
serena (=bicolorata), Hadena 24
sericea, Eilema 38
sericealis, Rivula 78, 80
sexpunctella (=terminella), Ethmia 74
sheperdana, Acleris 40
silaceata, Ecliptoptera ... Pl. II (fig.
8), 22
similella, Nephopterix 43
simonsi, Henotesia 127
sinapis, Leptidea 32, 67
sinelinea, A. brevilinea ab. 23
smaragdaria, Thetidis (Euchloris)
78, 81
smeathmanniana, Phalonia 40
sobrina, Noctua (Triphaena) ... 14,
22, 25, 26, 36, 45
sociata (=alternata), Epirrhoë 78
sociella, Aphomia 40
solandriana, Eucosma 41, 77, 78
solidaginis, Lithomoia 28
sophia, Precis 129

PAGE
sordens, Apamea 36
sororiata (paludata), Carsia 26
spadicearia, Xanthorhoë 38
sparganii, Nonagria 23, 33, 34, 86
sparsana (sponsana), Acleris 40
sphecíformis, Aegeria 20, 68
spilodactyla, Alucita 34
spissicella, Phycita 40
splendana, Laspeyresia 41
sponsana (=sparsana), Acleris 40
stigmatella, Gracillaria 79
straminalis, Evergestis 79
straminea, Leucania 24
strataria, Biston 2, 3, 4, 69
striana, Argyroploce 41
striata, A. rumicis ab. 36
strigilis, Procus 34
suasa, Hadena 42
subfascia, Pachyponsa 131
sublustris, Apamea 24
subocella, Thiotricha 73
suffusa, A. alpicola ab. 36
suffusa, E. aurinea ab. 21
suffusa, L. phlaeas ab. 19, 20
sulphurella, Dasycera 41, 67
suspecta, Parastichtis 22
Sussex Wainscot 84
swammerdamella, Nemophora ... 41, 69
sylvella, Lithocolletis 77
sylvata, Abraxas 15, 80
sylvina, Hepialus 38
syngrapha, L. coridon ab. ... 33, 35,
44, 103
syngrapha-inframarginata, L. cori-
don ab. 44
syngrapha + punctata, L. coridon
ab. 24
syngraphoides, L. corydonius 33
tages, Erynnis 69
tedella, Eucosma 41
telicanus, Syntarucus 126
temerata, Bapta 82
templi, Dasypolia 29
terea, Precis 129
terminella (sexpunctella), Ethmia 10, 74
terminella, Mompha 80
ternata (fumata), Scopula 14, 26
terpsichore, Acraea 129
testacea, Lygris 78
testaceata, Hydrelia 26
tetralunaria, Selenia 6, 45
thaiwanus, Papilio 47
therinella, Coleophora 82
thingvallata, D. citrata ab. 30
thrasonella, Glyphipteryx 72
thrax, Pelopidax 130
thulearia, R. hastata s.sp. 30
thulei, D. festiva race 45
thyone, E. semele race 30

PAGE
thysa, Belenois ... 128
tiliae, Mimas ... 8
tincta (=hepatica), Polia ... 68
tithonus, Maniola ... 19, 44
tityrus, Hemaris ... 72
torrida, Parallelia ... 129
touhilimasa, Precis ... 129
trabealis, Emmelia ... 18
transformis, L. coridon ab. ... 44
trapezina, Cosmia ... 18
transparens, P. megera ab. ... 26
trescoensis, T. matura ab. ... 37
tricolorella, Phthorimaea ... 67
tridens, Calamia ... 12
trifolii, Lasiocampa ... 45
trifolii, Zygaena ... 12, 13, 19
trimacula (=dodonea), Drymonia ... 45
trimaculana, Notocelia ... 41
trimeni, P. boisduvali f. ... 126
tripunctana, Eucosma ... 41
tristellus, Crambus ... 40
tritici, Euxoa ... 29, 36
troglodytella, Coleophora ... 71
truncata, Dysstroma ... 29, 36
trux, Agrotis ... 14
tullia, Coenonympha ... 27
turfosalis, Tholomiges ... 42, 43
typhae, Nonagria ... 78, 79
uddmanniana, Notocelia ... 41
ulicetana, Laspeyresia ... 68
uliginosellus, Crambus ... 43
ultraalbocrenata, L. coridon ab. ... 19
ultracaeruleo, L. coridon ab. ... 35
ultraflavescens, L. coridon ab. ... 39
ultrapunctata, L. coridon ab. ... 19, 35
ultraviridescens, L. coridon ab. ... 39
umbra, Pyrrhia ... 23
umbratica, Rusina ... 89
umbrifera, O. mucronata s.sp. ... 29, 37
uncana, Ancylis ... 68
uncula, Eustrotia ... 42
unguicella, Ancylis ... 78
unicolorata, D. citrata s.sp. ... 30
unifasciana (=consimilis), Clepsis ... 40
unionalis, Palpita ... 16, 17 18, 21, 26, 43
unipuncta, Leucania ... 3, 9, 14, 22, 29, 31, 33, 34, 36, 37, 38
urticae, Aglais ... 7, 19, 20, 30, 36, 44, 66, 69, 76
urticana, Argyroploce ... 71, 72
valentini, A. galathea ab. ... 43
varia, Lycophotia ... 78
variegana, Acleris ... 40
varleyata, A. grossulariata ab. ... 40
venata, Ochlodes ... 31, 38, 72
venosata, Eupithecia ... 73
verbascalis, Anania ... 73
verbasci, Cucullia ... 73
vesta, Colotois ... 128
vestigialis, Agrotis ... 23, 38
vetulata, Philereme ... 45
viburnata, Amelia (Tortrix) ... 73
villica, Arctia ... 24, 72
Vine's Rustic ... 90
viridana, Tortrix ... 40
viridaria, Phytometra ... 67, 68, 69
viridella, Adela ... 41, 67
viriplaca (dipsacea), Heliothis ... 11, 24
vitellina, Leucania ... 18, 26, 38
vulpinaria (rusticata), Sterrha ... 14, 26
waiensis, E. consonaria ab. ... 38
w-album, Strymonidea ... 69
wauria, Itame ... 42
weirana, Pammene ... 80
w-latinum, Hadena ... 42
xanthographa, Amathes ... 33, 37
xiphia, Pararge ... 28
xylosteana, Archips ... 40
xylostella, Ypsolophus ... 41
yeatiana, Depressaria ... 41
ypsillon, Apamea ... 18
zapateri, Erebia ... 33
ziczac, Notodonta ... 10, 32
zochalia, Belenois ... 128
zoegana, Euxanthis ... 40
zonaria, Nyssia ... 26

MAMMALS

Badger ... 80

MEGALOPTERA

Sialis sp. ... 5

NEUROPTERA

catta, Formicaleon ... 28

ODONATA

carovei, Uropetala ... 18
cyanea, Aeshna ... 17
nigrifemur, Sympetrum ... 17, 28

PHASMIDAE

morosus, Carausius ... 23

PLECOPTERA

bicaudata, Diura ... 5

REPTILIA

Adder ... 70
Grass Snake ... 66
vulgaris, Bufo (Common Toad) ... 20

PAGE

SALATORIA

apicalis, Chorthippus 28
barrettii, Metrioptera 28
bimaculatus, Gryllus 28
calliparea, Taphronota 4
decorus, Oedaleus 28
falx, Platycleis 28
griseoapetra, Pholidoptera 69
hispanicus, Gryllus 28
madeirae, Calliptamus 28
madeirae, Euchorthippus 28
migratoria, Locusta 28
nana, Phaneroptera 28
nana, P. nana s.sp. 28
nitidulus, Homorocoryphus 28
punctatissima, Leptophyes 83
purpurascens, Phymateus 4
roeselii, Roeseliana 81
rubescens, Sphingonotus 28
sparsa, P. nana s.sp. 28
squamiger, Mogoplistes 28
strepens, Aiolopus 28
thalassinus, Aiolopus 28
thalassina, Meconema 83
viridipes, Phymateus 4
viridissima, Tettigonia 81

TRICHOPTERA

assimilis, Tinodes 9
dorsalis, Rhyacophila 5

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